PC GAMER

BUILDING BETTER WORLDS

How to create your own levels for:

● Doom ● Descent ● Hexen ● Warcraft II
● X-COM ● MechWarrior II and others!

Building Better Worlds

Presented by

PC GAMER

and written by

John Houlihan

Building Better Worlds
Copyright © 1996 Future Publishing
All rights reserved. No part of this book may be duplicated, stored in a retrieval system or used as part of any other book, database, program or other commercial application without the publisher's express permission.

Book design and production The Book Factory

Cover design Andy Ounsted

Written by John Houlihan

All trademarks are acknowledged

This book is given free with the May 1996 issue of *PC Gamer* on the condition that it will not, by way of trade or otherwise, be lent, sold, hired out or otherwise distributed without the publisher's prior consent, in any form, binding or cover other than that in which it is published.

Contents

Chapter 1
Doom, Doom 2 and Hexen **11**
Introduction 12
First steps on the path of damnation 13
Your first room 13
The idea 16
Key concepts 16
Designing and drawing out your level 19
Personalising your level – working with sectors, textures and things 19
Adding Things 20
Playtest 24
End notes 25
Tricks of the trade 25
Also ran 29

Chapter 2
Mechwarrior 2 – The Final Conflict **38**
Introduction 39
Tricks of the trade 42
MechEdit 44
Internet sources for Mechwarrior 2 46

Chapter 3
Descent **47**
Devil 2.1 The Descent Level Editor 48
Mini manual 50
Modes 51
Walkthrough 53
Tricks of the trade 53
Help files 55
Associated Descent utilities 55

Chapter 4
Warcraft II – Tides of Darkness **59**
Introduction 60
A short guide to creating your Warcraft II level 61
Helpfiles 64
Also ran 64
Internet sources 64

Chapter 5
Rise of the Triad – Dark War **68**
Introduction 69
First principles 71
Walkthrough 72
Helpfiles 76
Also ran 77

Chapter 6
X-Com – Terror from the Deep **78**
Introduction 79
Walkthrough 79
Internet sources 82
Also ran 82

Chapter 7
Tie Fighter **83**
Internet sources 86
Lord Soth's Tie Fighter Archive 86

Chapter 8
The Shape of Things to Come **91**
Quake 92
Duke Nukem 3-D 95

Preface

Think of your favourite PC game ever Okay, got it? Now, if it is your favourite, I'm willing to bet that you know each and every level back to front, inside out and you've seen the end sequence a dozen times. Of course, some discerning publishers will remedy the matter for you by releasing mission disks and add-ons, but it won't be too long before you've exhausted those as well. What to do? What a quandary! Well, never fear, for there's stacks of both in-game and shareware level editors out there, which will get you into designing and give your favourite games a whole new lease of life.

Apart from some vague notion about calling this tome *The Joy of Wads*, I've got to admit that when I first approached the subject it was with a fair amount of trepidation. Having no real grasp of programming or the technical side of things, it was difficult to imagine a person less suited to customising and designing extra levels for PC games. However, much to my surprise I've found that it is possible for anyone, even rank amateurs like myself, to have a go. People who write level designers really do want you to succeed and try and make the task as easy as possible.

And truly, there's nothing to beat the satisfaction of designing your own levels for games. You can try out new ideas, strategies and special effects and it's you who gets to play god of the wads for a change. Take it from me, there's nothing to beat the odd, vicarious thrill of seeing your own level in action or the subtle, undefinable pleasure of watching four people gasp in horror as they rush round the corner into the middle of a conference of Cyber-Demons which you've saved as a surprise for that final room. Whole new worlds await you! Happy designing...

John Houlihan

Acknowledgements

We'd like to thank the following delightful people for their help in putting this book together.

Id's god of wads, **Sandy Peterson**
John Spinale and **Janine Johnson** from Activision
Darren Carter and **Steve Starvis** at US Gold
Peter Binns at Zablac
Alison Grant and **Neal McCleave** from Interplay
Lisa Humphries from Microprose

Getting hold of the software

You'll find that many of the programs recommended in this book have been included on the CD-ROM supplied with the May 1996 issue of *PC Gamer*. If you've bought the HD edition, however, or you're interested in some of the editors that we've been unable to include owing to copyright problems, you'll need to do a bit of hunting.

The Internet

Throughout this book you'll find references to World Wide Web sites and e-mail addresses. The Internet is by far the best place to get hold of level-editing software, advice and custom levels, and we'd thoroughly recommend it to all budding world-builders. A particularly good Web site is Happy Puppy at **http://happypuppy.com/** Also, try typing 'level editors' into one of the many available search engines.

Shareware libraries

If you're not connected up to the Internet, you'll need to get in touch with some of the shareware libraries that're advertised in *PC Gamer*. They'll be able to provide level editors and wads. Three you might try are:

Hornesoft (0114 296 7825)
PCL Software (01332 678713)
PDSL (01892 663298)

Chapter 1

Doom, Doom 2 and Hexen

Introduction

How do you write an introduction for a game that doesn't need one? Well you don't really, but suffice it to say, if you haven't heard of *Doom* or its progeny then you'll probably want to put this book back on the shelf and reach for a copy of *Gardeners' World*.

When the original *Doom* burst on the scene, after the initial cries of astonishment had died down, one of the first questions people asked was, "How can I design my own levels for this game?" Off they trotted to their local bulletin boards and downloaded a shareware *Doom* editor, eyes sparkling with naive wonder as they pictured the amazing levels they were going to create. Little did they know what they were letting themselves in for. Initially at least, *Doom* level editors were renowned for being fiendishly difficult and almost beyond the reach of mortal men.

And yet, the call of *Doom* was persistent and in spite of the difficulties, it was probably the first game to offer a real incentive for amateur level designers to 'have a go' for themselves. Some people did succeed in figuring out the editors, and the countless wads which litter the Internet and bulletin boards the world over are a testament to their persistence.

However, to the present day and with the passage of just a few short years, everything has changed somewhat Nowadays the focus has moved much more towards the user-friendly, with plush *Doom* level editors for Windows 95 with on-line help and all the trimmings. Although there's a veritable plethora of shareware *Doom*, *Doom 2* and *Hexen* level editors on the market at the moment, the one we've plumped for is *DEEP* – the *Doom Enhanced Editor Program version 8.35*, to be exact – by Sensor Based Systems, Inc.

The reason? Well it combines the best of all worlds.

It's an intuitive, easy-to-use program which allows even the rawest beginner to leap in and start designing straight away. But probe a little deeper and you will discover a powerful editing utility which allows you to create large, complex wads which will eventually stretch the imagination of even the most avid *Doom* designer. Undoubtedly the major attraction of using *DEEP*, though, is its flexibility, because you can use it to create levels for *Doom*, *Doom 2* and *Hexen*, all using the same easy system.

First steps on the path of damnation

Although editing existing wads can be a very rewarding experience, there's nothing to beat the thrill of Doom-ing it through your very own creation. So, throwing caution to the winds, I'm going to plunge headlong in and build my first *Doom* level from scratch.

Since designing levels for either *Doom*, *Doom 2* or *Hexen* is a remarkably similar process using *DEEP*, I'm going to create a simple one-player *Doom 2* wad to monkey around with. However it's important to realise that the same principles of level design can be applied throughout all these games. I've chosen *Doom 2* simply because it's my favourite of the three and I can access all those splendid extra monsters and textures. It also gives me a chance to sneak in the double-barrelled shotgun, my favourite weapon of all time.

Your first room

DEEP uses a project-based system which ties in with the main wad file of your registered copy of *Doom*, *Doom 2* or *Hexen*, so to start with you just pick which type of project you want to work on – in this case *Doom 2* – and provide *DEEP* with the location of your official wad file.

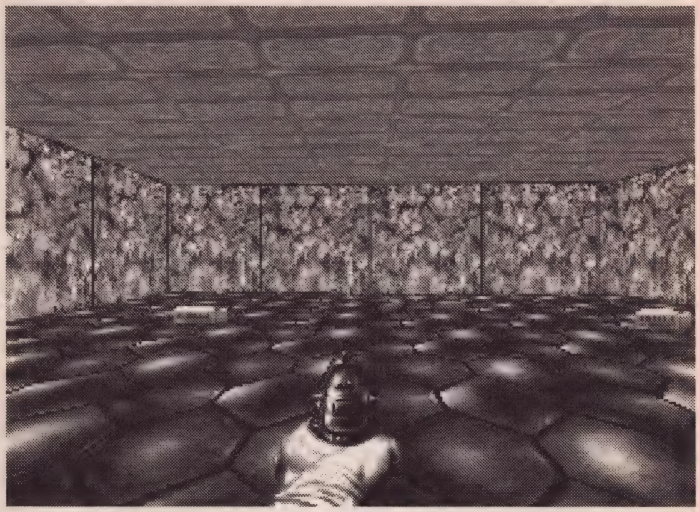
The next step is to choose 'New Level' from the file

menu, since we want to build this level from the base up. Seconds later, a big blank area appears waiting to be filled by our unholy imagination. At this point it's probably a good idea to enable to the grid by pressing 'H' and then experiment a little with the sizing options. Grids are extremely useful in level design, providing both general guidance on how your wad's going to look, as well as allowing you to judge scale and keep track of the links between different areas.

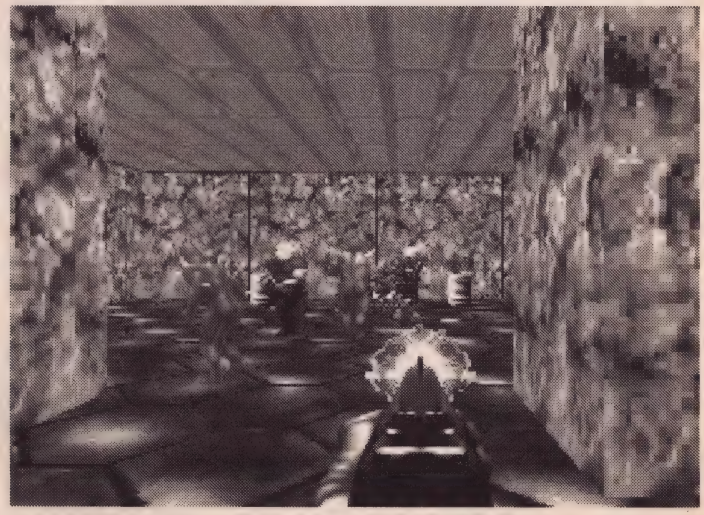
Okay, with the grid lined up, press F9 to enter Tool mode and bring up the objects menu, selecting option 1 – 'Make a rectangular room'. *DEEP* prompts you for a size, and 512 x 512 seems like a nice round figure. Use the mouse to juggle about with the dimensions of the box which appears on screen, then line it up with the grid and simply left-click to place it when you're happy .

Great, that's the first room done then, nothing to it, but you'll need to place a one-player start location for your Marine, otherwise you won't be able to explore the area. Using the Modes menu to select 'Thing' mode, place the cursor where you want your guy to start and press 'insert'. Right-click and choose the 'Change Type of Thing' button, then select number 3 from the list which should read 'Player Start/Teleport'.

After you've selected 'one player start', exit all of the menus and press the OK button and a little icon of a Space Marine will appear in your room. Even though this level's supposed to be empty at the moment, use the Things Tool again to add a quick shotgun and some ammo. Even though there's no monsters in there yet, you wouldn't want to go in armed with only a puny pistol, would you? Finally, go up to the File menu and select S to save the level. Prompted by *DEEP*, I decided to call my one weird.wad as I suspected it might become a little strange later on. Now it's finally time to check your room out and



My first room.



View through to the ante chamber.

this can be done using the -file switch. Change to your *Doom 2* directory and copy the wad file you've created there. At the Dos prompt type: doom2 -file weird.wad (where weird.wad is the name of your new wad file)

When *Doom 2* fires up, select 'new game'. Seconds later and by crikey there's your room in all its glory. It's looking a bit sparse I'll grant you, but there's the shotgun and some ammo, so take a moment to wander around, shoot the walls and allow yourself a quick smile. You've made your first *Doom* room and you should be as proud as any new parent.

But hang on! This is all very well, but there's no monsters, nothing to do, not even a way out yet. What about introducing some Imps? Or a Cyber-demon even? This level needs expanding! You'll positively salivate at all the opportunities awaiting you and suddenly you'll realise that ol' level designing bug has got a hold of you.

The idea

When you start designing a *Doom* level, it's important to begin with an idea or simple theme which will add coherence to your design . Expanding on my desire for a double-barrelled shotgun, I decide that I'll need a worthy end of level opponent and I reckon that my old mate the Hell Knight will prove a stern enough challenge. Combining these two ideas gives me my theme for the level, and plain old weird.wad is suddenly transformed into 'At Home with the Hell Knight'.

Key concepts

It's important to realise from the outset that although *Doom* appears to be a 3D game, for level design purposes you've got to learn to think two-dimensionally. Essentially, you're dealing with a flat map which represents the *Doom* environ-

ment and you've got to be aware of this limitation to avoid trouble later on.

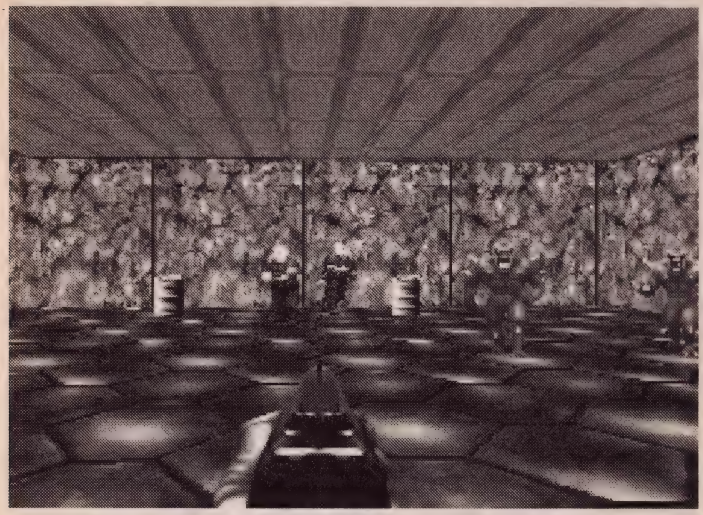
Right, now we're going to have go to a quick technical break and I'm going to introduce a few key concepts which will help you find your way through *DEEP* and onto richer and more complex levels. Don't be put off by the apparent technical aspect – if you can understand these few concepts you'll have grasped the fundamentals of *Doom* level design.

1. **Sectors** – Every area in *Doom*, whether it's a room, a door or a specific area within a room, is defined as a sector. Each sector has characteristics such as floor height, ceiling height, illumination level and information about what Textures it contains.

2. **Linedefs & Sidedefs** – Sectors are enclosed by and composed of straight lines called Linedefs, a shortened version of 'line definition'. Linedefs can be one or two-sided and each individual side of a Linedef is known as a Sidedef. Sidedefs have both upper, lower and normal textures and each Sidedef must belong to a sector.

3. **Things** – All the monsters, room objects and weapons in *DEEP* are known as er, well, Things. You can use the Thing menu to edit and alter their characteristics for everything from their initial facing, to their difficulty level or whether they'll respond to sound or not.

4. **Textures** – A Texture is, quite simply, a graphic representing a piece of *Doom* scenery. Look at the walls, floor and ceiling of any *Doom* room and you'll be seeing a Texture.



General view of ante chamber.

The main hall with shotgun and Imps advancing.

Designing and drawing out your level

Okay now you've digested those terms, we're going to press on and expand weird.wad into a proper *Doom* level. This time I'm going to ignore the 'Make Room' option and select *DEEP*'s drawing tool (control – D), using it to construct linedefs which will make another rectangular room above my start point. This is going to serve as an antechamber and the first point of conflict for the player. Now I add another larger room to the west, which will become my Main Hall and since I'm feeling a bit more confident with the drawing tool, this time I make it a more irregular shape which contains a couple of alcoves. Finally, I designate another room below the main hall which will become my Hell Knight's private quarters. Hurrah, that's the rooms finished, but now I'm going to have to link them up! Still in drawing mode, I draw smaller boxes in the spaces between the rooms, splitting my original Linedefs so that a space is created in each wall.

Selecting F9 again, I enter tool mode and choose Make Door, which inserts a scalable box into the spaces. Now choosing vertex mode for the first time, I line up all the individual door and wall Linedefs, then go into Linedef mode to tweak them so that they sit smoothly against each other and open properly. Finally I use *DEEP*'s diagnostic options to check that all my sectors and linedefs are consistent and that's it, the floor plan of my new level is complete.

Personalising your level – working with sectors, textures and things

This is easily the most satisfying part of creating a *Doom* level and it's the place where you can stamp your own personal seal of authority on a wad. After having another look around weird.wad I decide that I want to change the look of the level, because at the moment everything's done using

the same set of default marble textures and it doesn't quite fit in with my theme of 'At home with the Hell Knights'.

The start hall and the ante-chamber are fine, but my main hall definitely needs a different look. Switching to linedef mode I click on the various Linedefs which make up the walls and choose some earthier tones, more in keeping with the mood, from the exhaustive list in the textures box.

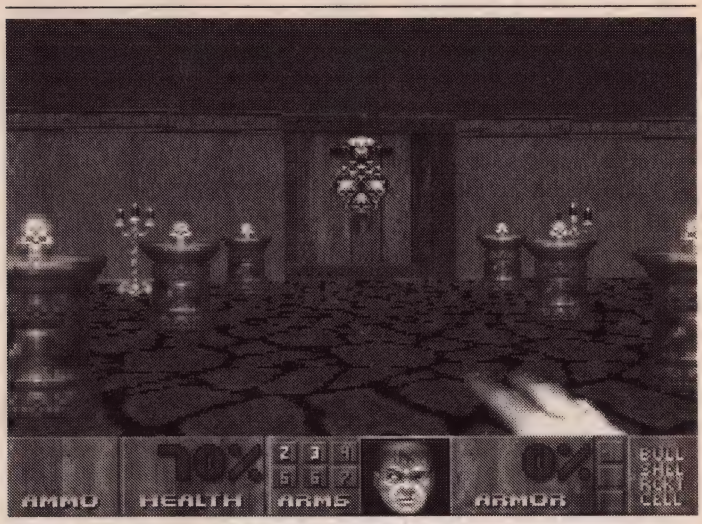
Likewise, the Hell Knight's chamber needs a more personal feel, it's his den after all, so I add some bookshelf textures to the walls and a big Icon of Sin at the back. That should make him feel at home. At the moment, some of the door textures look a bit too modern, but it's only seconds' work with the texture box again to change them to a more mediaeval style. Now I move into Sector mode and go through each of my rooms and add some new floor and ceiling textures to complement the walls and enhance the look of the place. I also take the opportunity to adjust the illumination level downwards in the main hall, so that an atmosphere of gloom pervades this area.

Adding Things

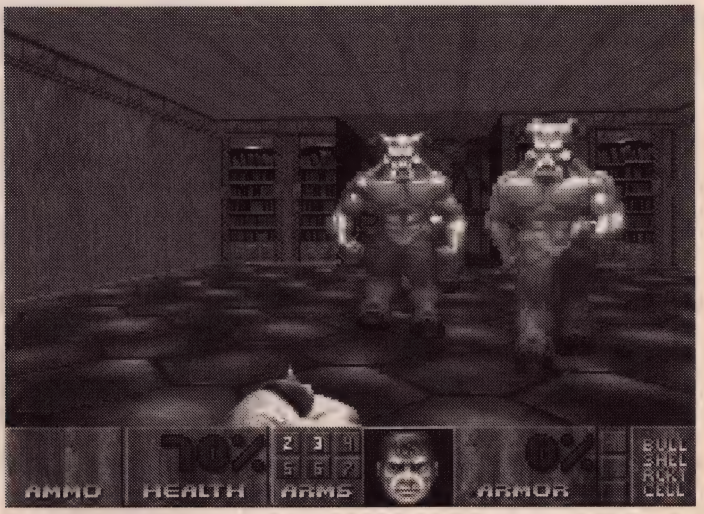
Now to start cooking by adding some monsters and objects which will provide the challenge in weird.wad. Into Thing mode and I populate the ante-chamber with Imps and Shotgun guys as a little taster of what's to come, but I also place a couple of barrels so that my marine can blow them up and inflict some early casualties.

The main hall is where my Hell Knight's bodyguard will go, but this time two larger group of Imps and Shotgun men hide in the alcoves and will provide the cannon fodder. The copy option is particularly useful for placement and I simply choose an arch typical Imp and then paste multiple copies into place to represent his comrades.

Finally I put a Hell-Knight in the library and conceal a



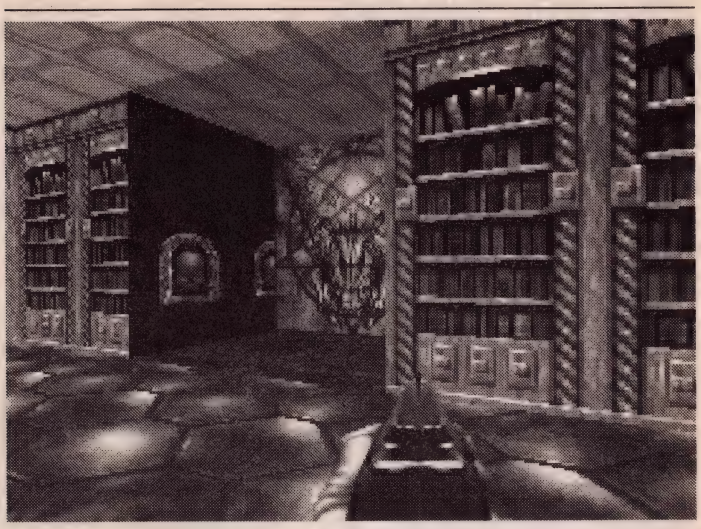
Detail of Hell Knights door.



Advance of the Hell Knights.

Close up of Icon of Sin in Hell Knight library.

Interior of Hell Knight Library.



General view of Hell Knight's library.

Hell Knights advance.

Close quarters with the Hell Knights.

double-barrelled shotgun and some extra ammo back in the main hall. The monsters are in place but everything looks a bit spartan, so I put some pillars with skulls and a couple of candelabras outside the entrance to the library. I hope this will encourage a sense of foreboding in my player and make them wary of what's lurking behind that door.

Playtest

This is probably the most crucial point in judging the success of your level. As it slowly grows in size, you'll find yourself returning to playtest it often, as you strive for that elusive balance between challenge, excitement and reward for the player.

Right, back into *Doom 2* and playing through weird.wad, I find that things haven't quite worked out as I'd planned. The ante-chamber is fine, but as soon as shooting starts, all the monsters from the main hall rush in and join

the fray as well. The single Hell Knight in the library doesn't prove to be much of a challenge either.

Oh well, back to the drawing board! Back in *DEEP*, I adjust the monsters' behaviour characteristics, so that all those Imps and Shotgun men in the main hall become deaf and won't respond to the shooting. Two Hell Knights are still not enough, but I find adding an Arch-Vile makes things too difficult. Three Hell Knights strike a reasonable balance and after much tinkering, I eventually decide to call it a day there. Well that's it, weird.wad has finally become a fully-fledged level in its own right. It's undoubtedly full of mistakes, it hasn't even got an exit, but on the other hand it plays well enough and most importantly, it's mine, all mine!

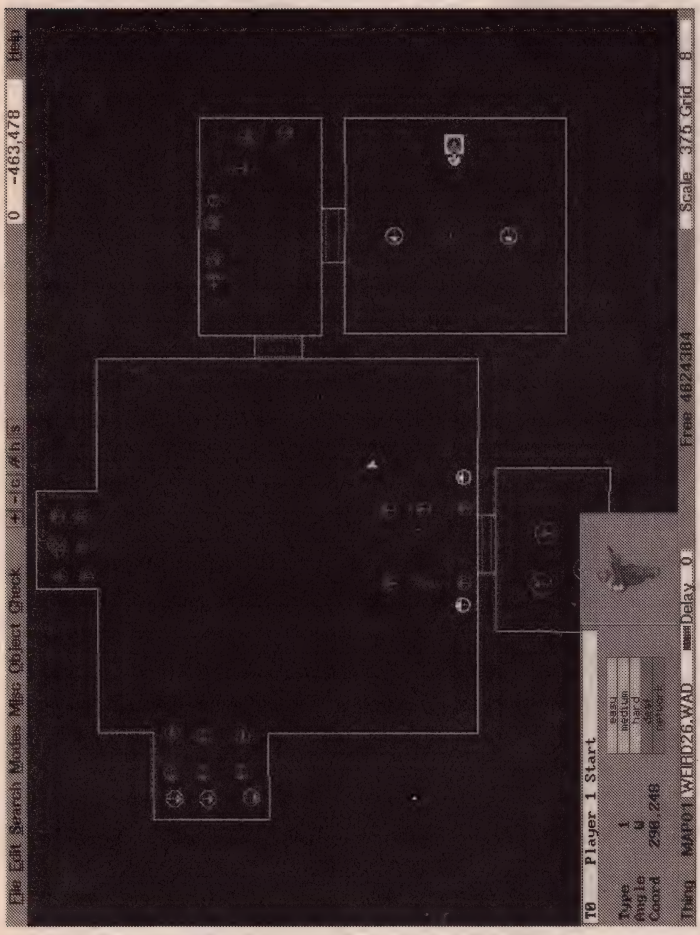
End notes

So that's how to create a very simple *Doom* level. Hopefully it wasn't too complicated, was it? Remember, although all the examples we've used come from *Doom 2*, the way *DEEP* works and the principles we've discussed can be applied across the whole range of level design in both the original *Doom* and *Hexen* as well.

Although we've covered a fair amount of ground in this sample wad, when you look at the average official *Doom* level, you'll realise that we've barely scratched the surface. More complex room shapes, different heights, switches, buttons, teleports and special effects are all available by utilising *DEEP*'s advanced functions. With on-line help and sufficient time, *DEEP* will allow you to fully explore these more esoteric features at your leisure and create bigger, better and frankly, much more unpleasant wads.

Tricks of the Trade

It's all very well chuntering on about level design, but what do I know? It's time to seek some expert opinion and, to



General level view – tool mode.

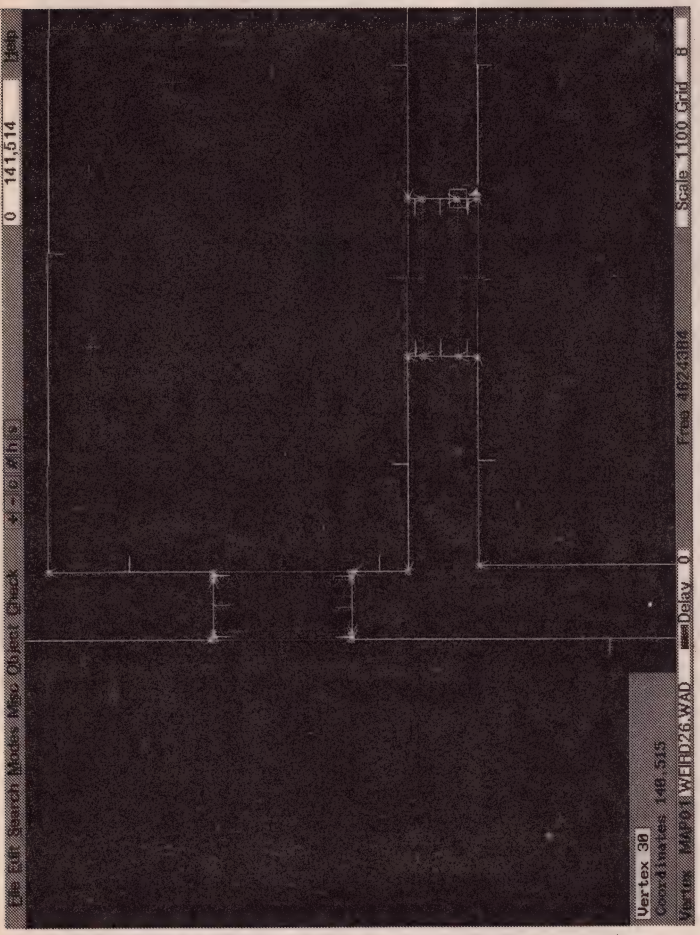
this end, we've been fortunate to enlist the aid of a man which all budding level designers must bow down to and acknowledge as their unholy idol. Responsible for some of the best levels in *Doom* and *Doom 2*, ID's Sandy Peterson is indeed a veritable god of wads and this is his advice for creating better *Doom* levels.

1. "The best levels usually include some sort of theme, central idea or motif which provides a coherent link throughout the level. It's best to try and avoid designing a level where the areas are disconnected and don't bear any relation to each other. My favourite levels like Tricks and Traps always have a strong theme."

2. "It's good for any level to offer something which is new for the player, something they haven't seen before. Simple little one-off tricks, such as a stairway which turns into slime once you've climbed it, add variety. Surprise your player and they'll end up coming back for more."

3. "Reward your player for success. If they work out a puzzle or overcome a tricky area, make sure that they receive some sort of bonus. If a button spectacularly raises a bridge out of a fiery pool of lava, let your player see it happen. It will increase their motivation to complete that level ten-fold."

4. "It's worth paying attention to detail. Every area or hallway should have something interesting in it, whether it's a piece of decoration, a ridge on floor or whatever. In a perfect level, almost every room or tunnel will have some unique feature which increases the overall experience."



Putting the doors in place in linedef mode.

5. "Put the player in trepidation and use your design to gradually increase their sense of fear. There's all kinds of ways of doing this, from doors with pools of corpses around them, to weapons sitting in a solitary pool of light which they know will trigger of some sort of major trap. Above all, make them nervous!"

6. "Don't be afraid to include humour in your level design – little jokes are always appreciated."

7. "Try to have some standard things which the player will recognise. For example, the blue key in *Doom* is usually the first key to be picked up and players, even unconsciously, associate this with the beginning phase of the level. Using some standard operations will promote a sense of consistency within a level."

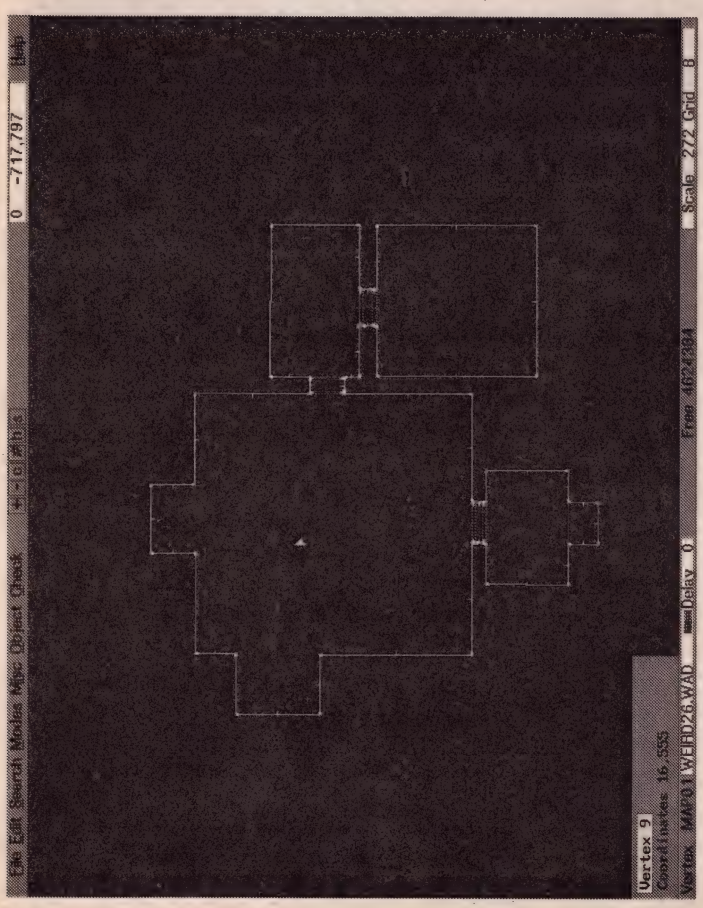
8. "When designing a deathmatch wad, avoid large, linear levels as they don't really work. Try to have a central area or choke point where you can find your opponents easily. There's nothing worse than wandering around for ages without firing a shot. Deathmatch levels should also include more sniper points and secret places to shoot from than average. If a player is trying for something really worthwhile, like a plasma gun or rocket launcher, it should involve some element of risk; either by drawing them out into the open, or making them walk over some slime, so that everyone else knows where they are."

Also ran

DEU – The Doom editing utility – Excellent all-round Doom designer

DoomCad – Novice Windows Doom-er which looks rather nice but lacks depth

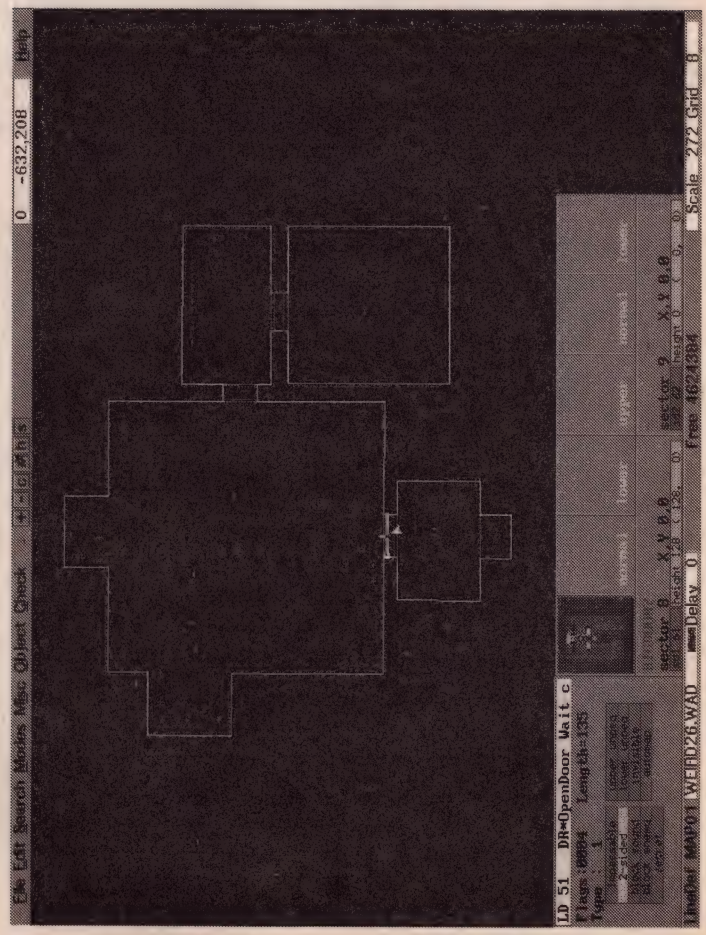
Doom Construction Kit – Splendid and comprehensive Dos designer



Drawing out the level in linedef mode.

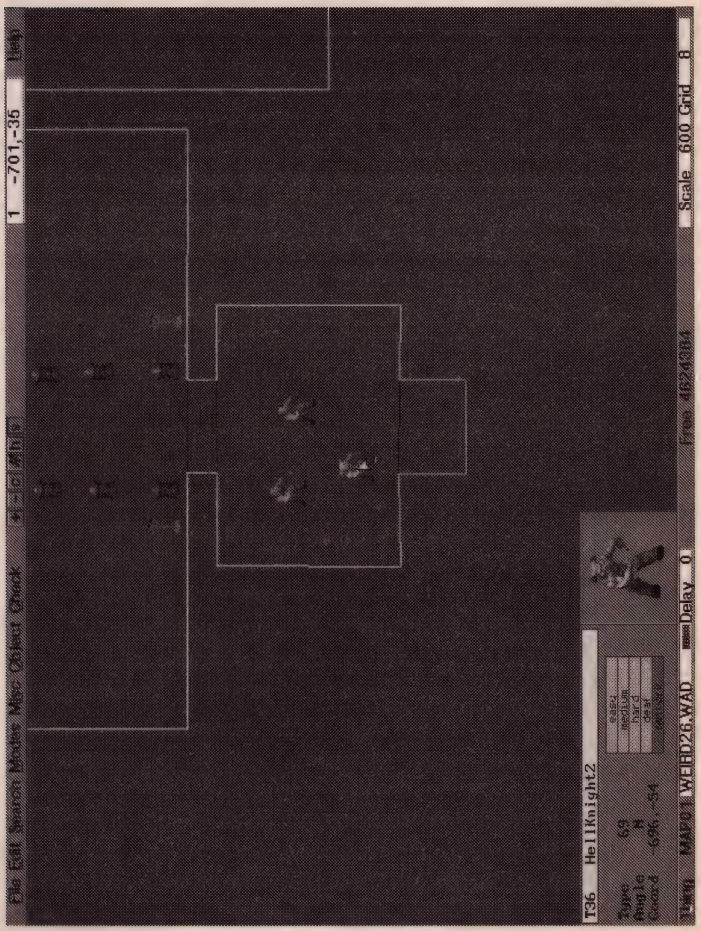
DoomCAD – Another beginner's Doom editor for Windows

DoomEdit – Rather limited Dos-only builder.

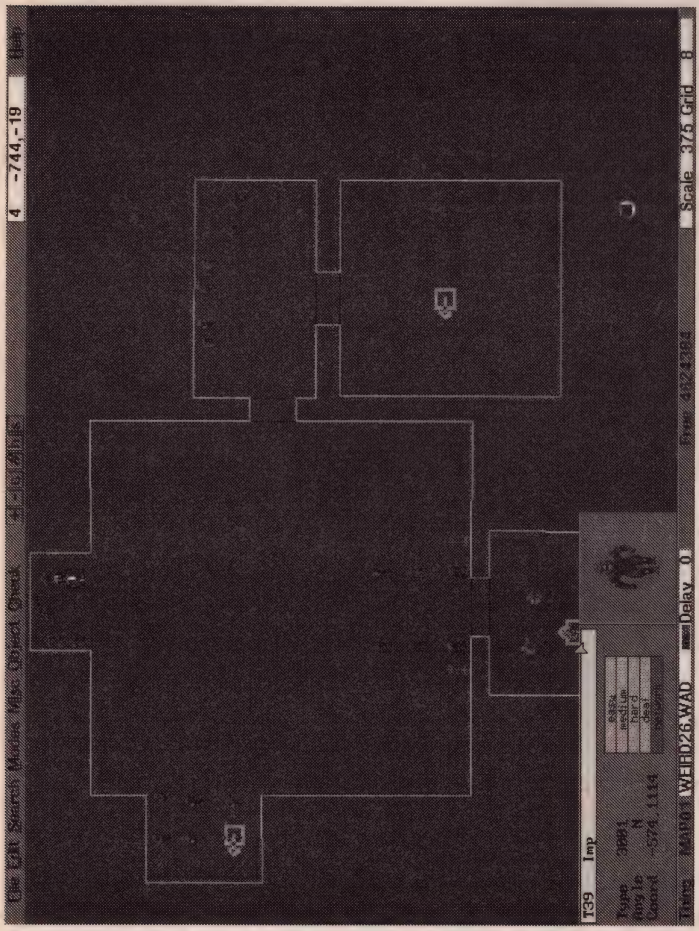


Changing the door textures.

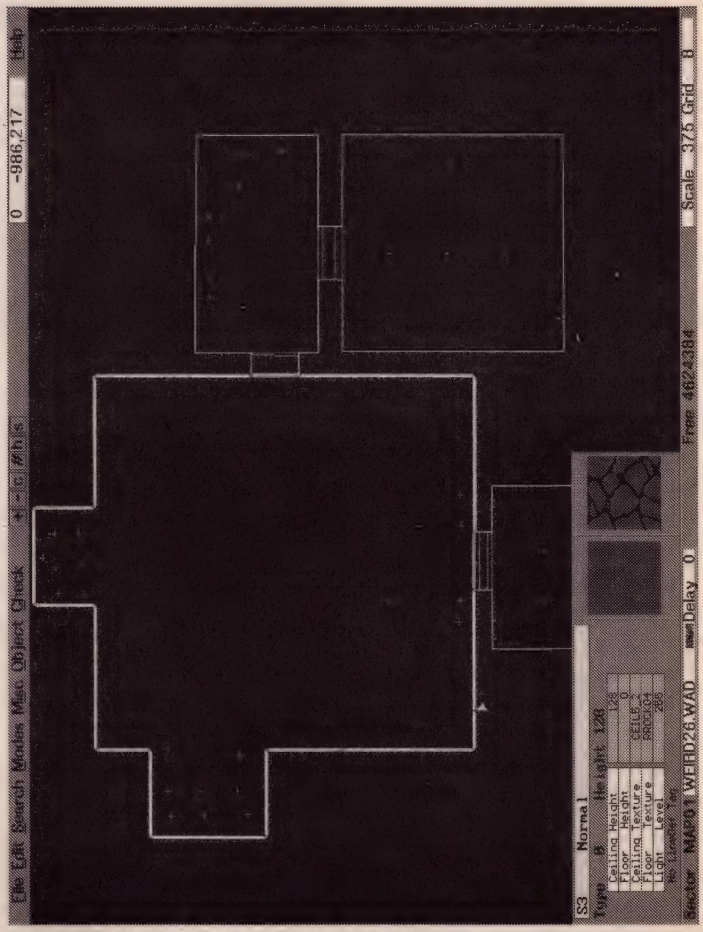
My first room.



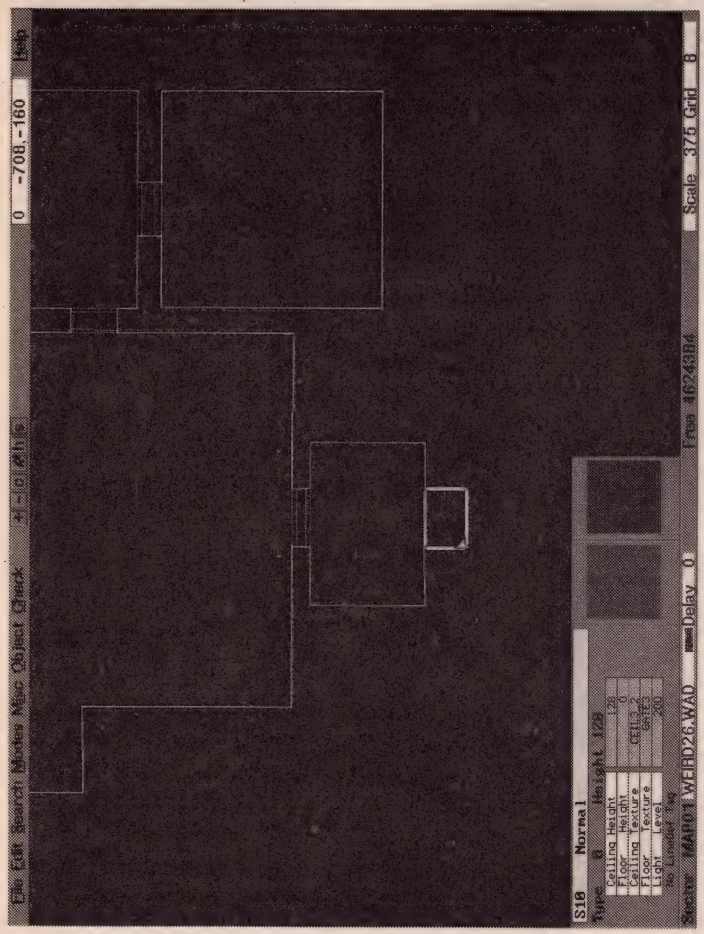
Placing the Hell Knights and pedestals in Thing mode.



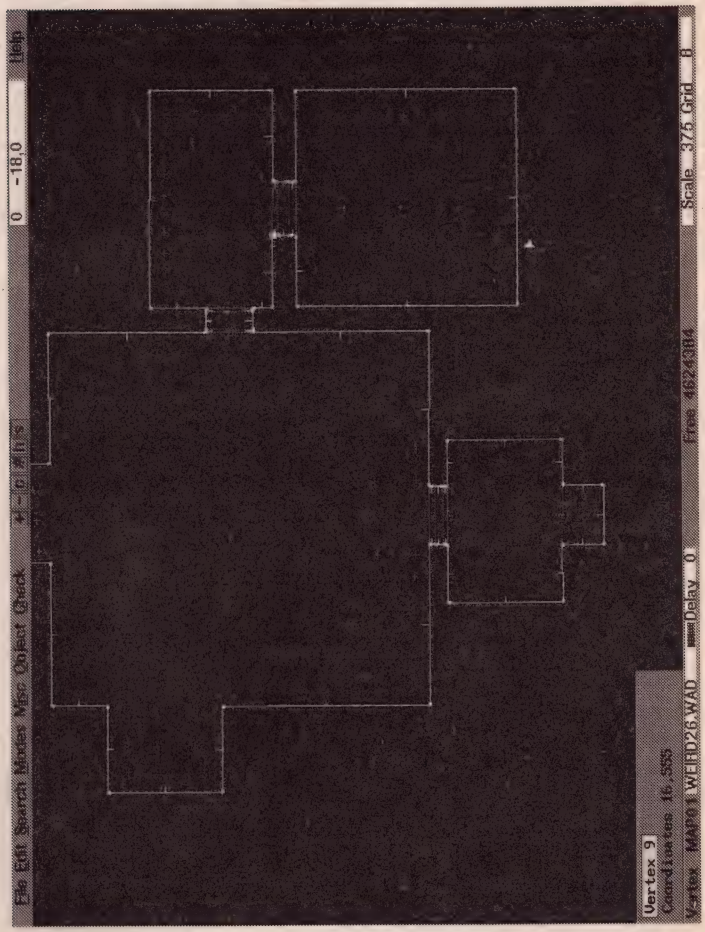
General view of level in Thing mode.



Changing the floor and ceiling textures in Sector mode.



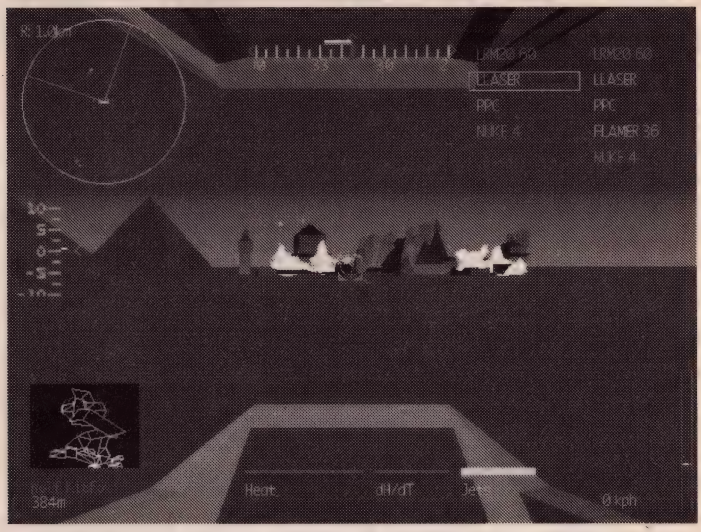
Changing textures in the library – sector mode.



Level view linedef mode.

Chapter 2

Mechwarrior 2 – The Final Conflict



The nutter squad two mech in action – note the enhanced weapon capabilities.

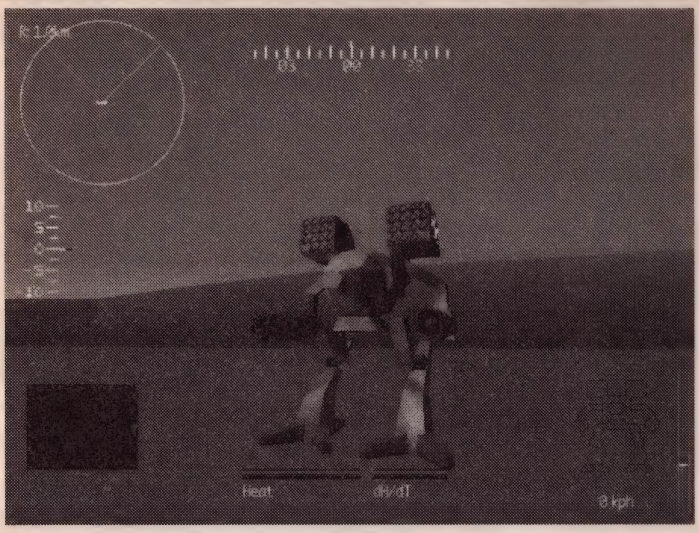
Introduction

Activision's *Mechwarrior 2* is one of finest examples of the 'big robots' genre on the market at the moment.

Set in the highly detailed and atmospheric *Battle-Tech* universe, it offers absolutely gorgeous graphics, detailed mission design and some of the most ferocious and authentic mech combat experiences available to the PC games player.

But one of *Mechwarrior 2*'s best features is often one of its most under-used. For, integrated into the main program, is an absolutely splendid, user-friendly editor, 'The Mech Lab', which allows players to completely customise and re-design their battle machines.

However, with the recent release of the Pentium edition of *Mechwarrior 2*, the role of mech design is about to change with the inclusion of Net-Mech, a networking fea-



ture which will allow up to eight separate players to go head-to-head. Now with Net-Mech battles available, no-one's going to enter into a engagement without experimenting a little on their basic model, to try and tip the balance in their favour.

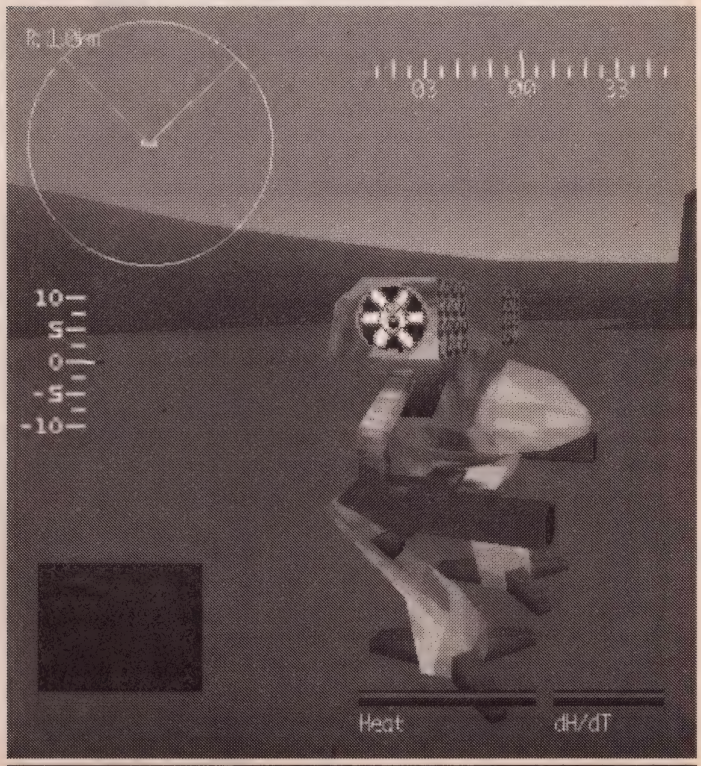
Most mechs have at least two or three variants and it's quite fun initially to just play around with different payloads and weapons combinations. However, if you really fancy making a mech your own, strip it down to the chassis and start from the bottom up. You can customise your basic model via a series of menus which determine everything from engine size to the number of heat sinks you carry and whether you've got jump jet capability.

It's a very easy system to use and hardly requires explanation, as the Mech Lab will automatically point out any design flaws for you. Still, you have to strike a delicate balance in mech design and always work within the guiding

rules of weight and space limitation.

The idea of customising and fighting with your own personalised mech has taken off in a big way in the States. There are already a number of Internet sites which are dedicated to Net-Mech and which maintain ladders and league rankings for their best players.

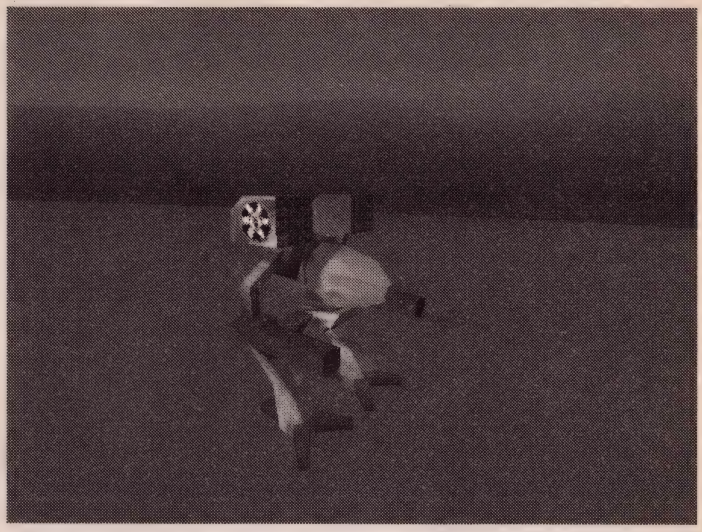
With this in mind, we spoke to John Spinale, head of Activision's Mechwarrior project about the intricacies of mech design and the finer points of building the ultimate killing machine.



Tricks of the Trade

First up, John reveals that all the *Mechwarrior 2* development team are extremely keen Net-Mech players and they all have favourite models and designs which undergo constant tweaking in the battle for supremacy. In fact, allowing players to customise their own mechs was a key component of the game's development. " The heart of the design was to allow people to live out their Battle-Tech fantasies and pilot mechs which they could specify in sometimes frightening detail. I think a lot of credit should go to our system architects, who've incorporated an editor system which is so easy to use."

Next we move onto the subject of what makes the perfect mech. "There really is no such thing as the perfect mech, it really depends on the situation. For example you might have a heavy mech packed to the brim with lasers, which would be fine normally. But if you find yourself on a



very hot planet it will probably suffer from severe heat overload. In confined areas like a city, smaller mechs with short range missiles might have an advantage over heavier, more cumbersome opponents. But overall, you've got to concede that large, heavier mechs will usually prevail."

Well since there's no such thing as the perfect mech, what advice can he give when designing a mech of your own? "Well, most Net-Mech contests are based on weight, so try out different designs for the light, medium and heavy categories. Find which weapons package is best suited to your playing style

"In general, just try experimenting with your designs. Take them out for a test-run and see how they perform, then tweak any features you're not happy with. You won't be able to include everything you want – Mech design is always a compromise – but above all, just have fun." Wise words indeed.

MechEdit

Well that's the official editor dealt with, but there are also one or two shareware versions around at the moment, and we decided to take a look at *MechEdit*, a simple but charming little Windows program which can do some truly astonishing things to your average mech. It works with both editions of *Mechwarrior 2* as well as the *Ghost Bear's Legacy* mission disk. However, because it allows you to cheat and create what are in effect super mechs, it's not recommended for standard Net-Mech missions as this would violate the strict Keshik code of honour (and really tee off your mates).

Installing *MechEdit* is as easy as running the setup program, and it installs neatly under Windows 95, even creating an icon for you on the start menu. Once you run it, you're presented with a standard Windows dialogue box and you simply move around the options with the mouse and input values for each of your mech's characteristics.

I'm going to create a simple but very deadly variation on the Timber Wolf, which I'll call the Nutter Squad 2. I'm content to leave the armour values at a massive 255 and putting in an engine value of 20 will allow me to cruise at speeds in excess of 300mph (larger values will make you unfeasably quick – up to 3000mph!).

Pretty cool so far, but when it comes to weapons, I'm in a bit of a dilemma. After I've dragged some LRMs, long range lasers and PPCs into the 'Weapons on board box', what next? Ah the perfect solution, what about ten tactical nuclear weapons? That should cover all eventualities.

Okay, that's my super mech created and now I simply save it in the MEK directory of the main program. One thing I've discovered about using *MechEdit* is that you can't change the file name drastically, otherwise *Mechwarrior 2* won't recognise your new designs. Use the default file name 'drw00usr.mek' for your first creation and then

Windows Mechedit program

drw01usr.mek, drw02usr.mek etc. for subsequent variations and prepare to blow those Clan Wolf dogs away.

Internet sources for Mechwarrior 2

www.Activison.com
mech2Users.aol.com/mech2reg
www1.clarku.edu/™rmohns/mw2/lograph2
rec.games.mech2

Chapter 3

Descent

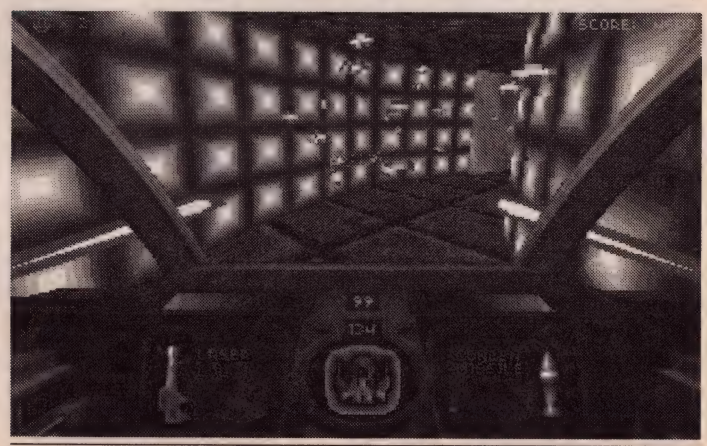
Parallax Software's *Descent* was a huge smash for Interplay when it was first released.

A frenetic first person shoot-em-up, which cast you as pilot charged with putting down a robot rebellion on the far mines of Pluto, it was the first game to offer true 360 degree movement in a completely three-dimensional environment. And what an environment it was, with players having to negotiate a complex labyrinth of twisting tunnels, battling all manner of hostile robot guards and rescuing groups of hostages, before blowing the main reactor and getting the hell out of there before the whole base went nova.

Devil 2.1 The Descent Level Editor

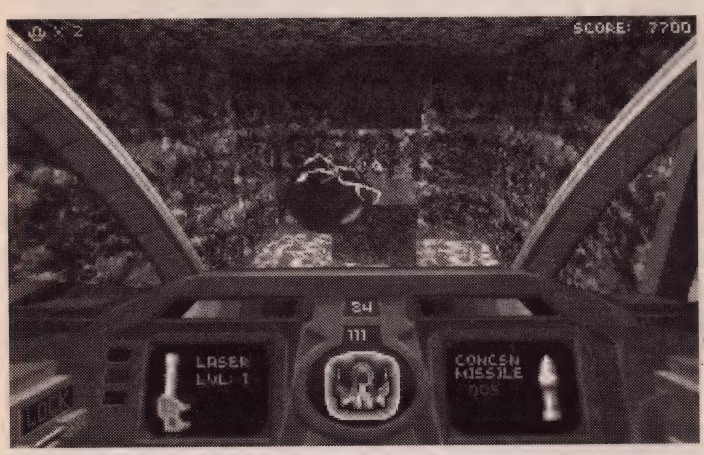
The official *Descent* levels were scorching enough, but it's definitely the kind of game which lends itself to a bit of amateur design. The editor we've chosen is *Devil 2.1* and its associated utilities, because it's just about the only complete level designer for *Descent* around. If you want to build your own *Descent* levels, this is the one you'll have to go for – but it does come with an unofficial recommendation

from the original developers, so that should be okay. Although *Devil* can only run under Dos or Windows 95 Dos Mode, it's relatively simple to use and it's also a true 3D editor, so you can give your imagination free reign and construct the most perspective-defying *Descent* levels around,



Mini Manual

The basic building block when using *Devil* is a cube, and each level you design will be made up of tens or possibly even hundreds of these separate cubes. Each cube can be manipulated using one of the five main modes.



Modes

1. Cube Mode – Allows you to move between all the cubes which make up your level and insert new cubes to build new areas. You can also use it to set the general characteristics of a cube and the illumination level within its area.

2. Wall Mode – A wall is defined as one complete side of a cube. You enter this mode to set the characteristics of specific features like doors. It's also used to set switches which will trigger special events like the end of level exit.

3. Side Mode – Moves between all the specific sides of a cube. It's primarily used to enhance the look of a level by changing the texture of the walls.

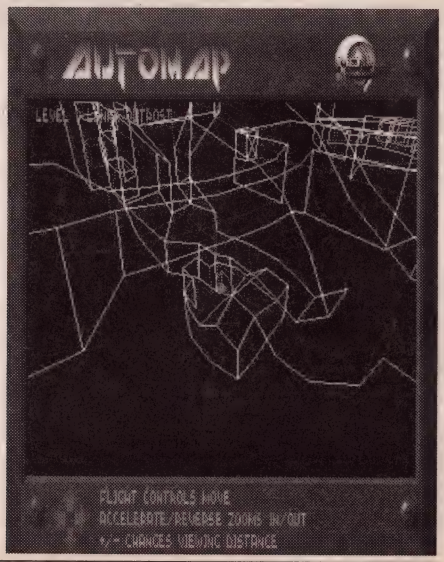
4. Point Mode – Allows you to manipulate the X, Y and Z co-ordinates of the sides of a cube, which will alter its overall shape, creating strange and unusual shapes for your walls.

5. Thing Mode – Used to insert a thing, which is what *Devil* calls all the weapons, robots, ammo and power-ups in *Descent*.

Where *Devil* is really clever, though, is in its use of Macros. You can define any area, say a large room or a long tunnel which you've created within a *Descent* level, as a macro. Store it in *Devil*'s macro list and when you need a similar structure later on, you simply call up your original room and insert it into place. This way, you can quickly build up a substantial list of standard macros for rooms and corridors, which will make your *Descent* level design infinitely quicker.

In game level Map.

Close up of in game map.



Walkthrough

I'm going to make a very basic *Descent* level and I begin by loading up *Devil*'s new.rdl file, which gives me a simple cube with my ship in it as a starting point. Entering Cube mode, I choose 'make new macro', which will define this shape as my building block.

Then, switching to side mode, I select one side of the cube and press shift and insert to create another cube adjacent to that side. Continuing the process, I simply add more cubes until I've fleshed out my level, which is basically just a long corridor with one large room at the end.

Next, I go into wall mode and place a door on the far side of the big chamber and use the wall menu to define it as the level exit. Every level must have a reactor, so I go into cube mode and define an adjacent cube as reactor space. The next step is to provide some opposition, and accessing the things menu allows me to select a couple of guard drones and a Vulcan cannon to beef up my ship.

Finally, I use the sides menu to move around the main chamber, altering the walls' textures, to give my level a slightly different feel. And it's a simple as that – or is it?

Tricks of the Trade

1. Remember that *Descent*, unlike *Doom*, is a true 3D game. Use this to your advantage in level design and avoid 'flat' levels, as they tend to be a bit boring. Use your full 360 degrees and make those tunnels twist and turn!

2. Use the points mode to play around with the shape of your basic cube. If you examine an average *Descent* level you'll see that very few rooms are just square or rectangular. By experimenting with the basic shape and

An example of one of the more spectacular *Descent* rooms which comes as a Macro with Devil.

constructing new polygons, you'll discover how to make much more interesting and challenging rooms.

Help files

All these help files are located in *Devil*'s Docs directory.

Buildlev.doc – First steps with *Devil* and how to construct a sample level.

Userman.doc – Complete manual for the game.

Devil.doc – Guide for editing existing *Descent* levels with *Devil*.

Refman.doc – Further advanced reference material for using *Devil*.

Associated Descent utilities

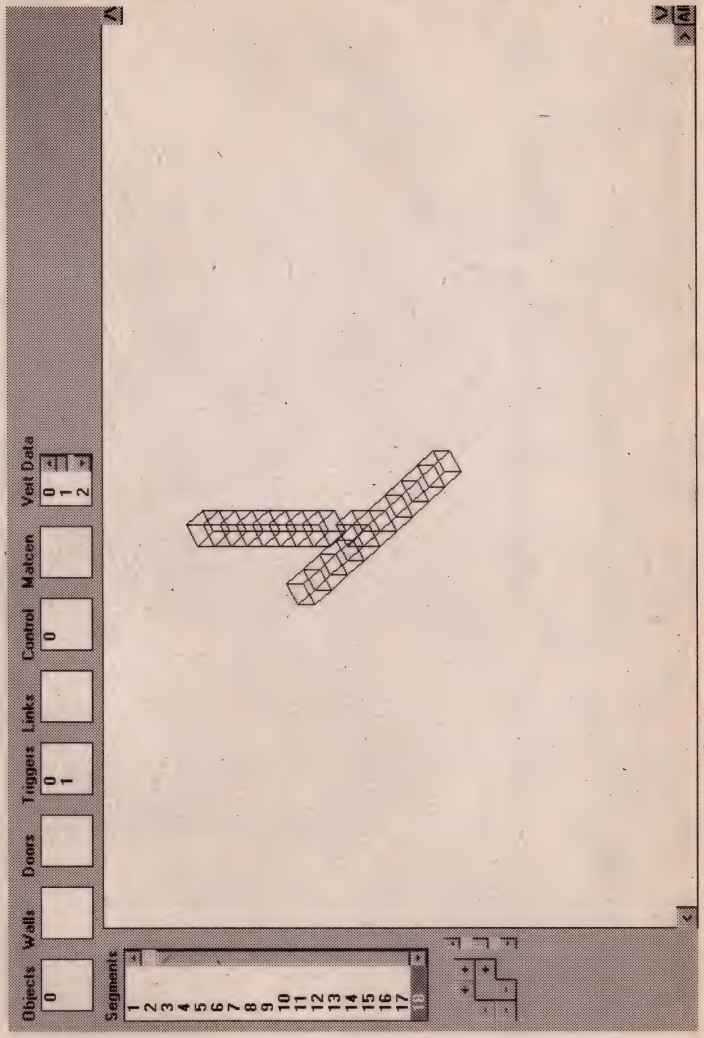
dcntspec.zip – A hex file editor (and therefore somewhat tricky) for use with the registered version of *Descent*.

lvlinfo.zip – A program which describes the level and mission format for a *Descent* level. Can be used to construct *Descent* levels but requires manipulation of the source code, so again not for beginners.

Makehog.zip – *MakeHOG* is a utility which you use in conjunction with mission files (.MSN files in *Descent*) which combine multiple levels into a single HOG file. Recommended by Parallax for distributing new levels.

Rdlview.zip Is a browser which will allow you to display *Descent* levels (.RDL files) in Windows.

Building the basic level shape.

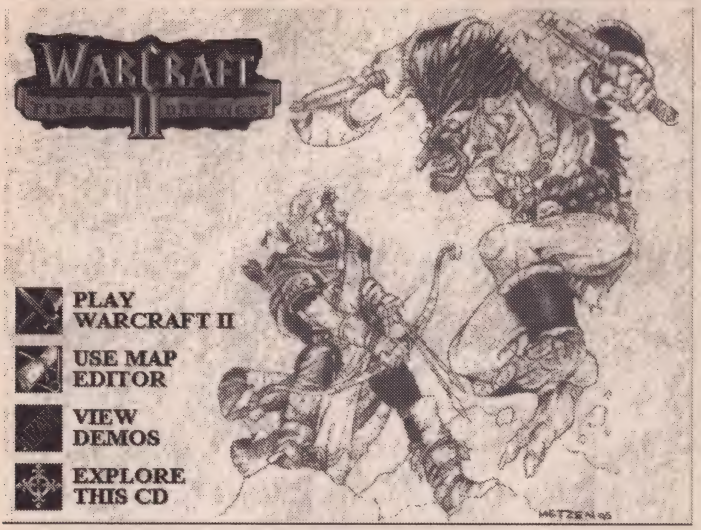


Making a T junction.

Devil's basic building block – The cube.

Chapter 4

Warcraft II – Tides of Darkness



Introduction

The original version of *Warcraft* held gamers rapt, for though heralds scoured the land, a finer rendition of yer' actual fantasy strategy fest could not be found. You could smite the foe most righteously, wield arcane magic powers and when you issued orders to your troops they'd answer with a humble "Yes, my lord" or "My liege" as they scurried to do your bidding. But best of all, there were complete campaigns for both sides in the conflict and you could indulge your Human or, er, 'Orcy' persona to the hilt.

When *Warcraft II* was released, it was rightly received with the same rapturous acclaim, as players gosh-ed and ooh-ed at the spectacular new unit and building types which brought a whole new dimension to the game, which now embraced both sea and air battles as well as the more traditional land war. With an eight-player network feature and substantial numbers of custom games already on

board, who could resist tinkering with some of the existing scenarios or even creating one of their own? Well not me, that's for sure, and blow me down, if that's not just what I'm about to do.

A short guide to creating your Warcraft II level

You can cover me in clotted cream and whip me with a stick of rhubarb if anyone bothers writing a shareware editor for *Warcraft II*. Why? Well, because the game comes with a fully integrated Windows scenario editor which is an absolute joy to behold and so much fun to use, that it's almost as big a laugh as playing *Warcraft II* itself.

When you're creating a scenario, the first thing to do is choose 'new' from the map editor's File menu to select the size and terrain type of your *Warcraft* world. I've chosen a small, forested level and it's usually best to begin by mapping out the terrain, so that you get a general idea of what you're after. Using the mini map to keep track, I draw with the terrain tools to create a large river in the centre, which will act as a buffer between the human and orc forces, and then add two fords, so that they can still get at one another. After that, it's simply a matter of moving around, pointing and clicking to add trees and rocks as well as jollying up the open spaces with some more interesting scenery.

Gosh, this is so easy it's almost embarrassing, so moving rapidly on, I select player one to define my human player's settlement. Going to the Tools menu, I find an exhaustive list of human building and unit types and I just select one, then move the cursor box to where I want it on the map and left click to plonk it into place.

Starting with a town hall, I soon build up a small but perfectly-formed village and add some men-at-arms and archers, led by a mighty human knight to defend it. When I

Constructing the human village.

At home with the orcs.

switch over to player two, the orc settlement flourishes just as rapidly and should provide some stiff opposition for their human neighbours. Finally, I add a couple of gold mines and an air unit apiece to make things interesting, rounding of my level with some sheep, for added comedy value.

Okay, now all I need do is copy the new.pud file – which is what *Warcraft II* calls its maps – into the main *Warcraft* directory and I'm away. When I load up the game and select custom mission, my new level pops up and I'm ready to enter the fray.

Warcraft II's editor is, in a word, wonderful. It's friendly, easy to use and will get you up and running in next to no time. You can use it to tinker around with just about every aspect of the game, from the amount of gold in a mine, to how hard your griffins are or even the sound files which determine how your troops answer. There's really nothing more to say except "Set course for the slaughter, there's humies off the starboard bow."

Helpfiles

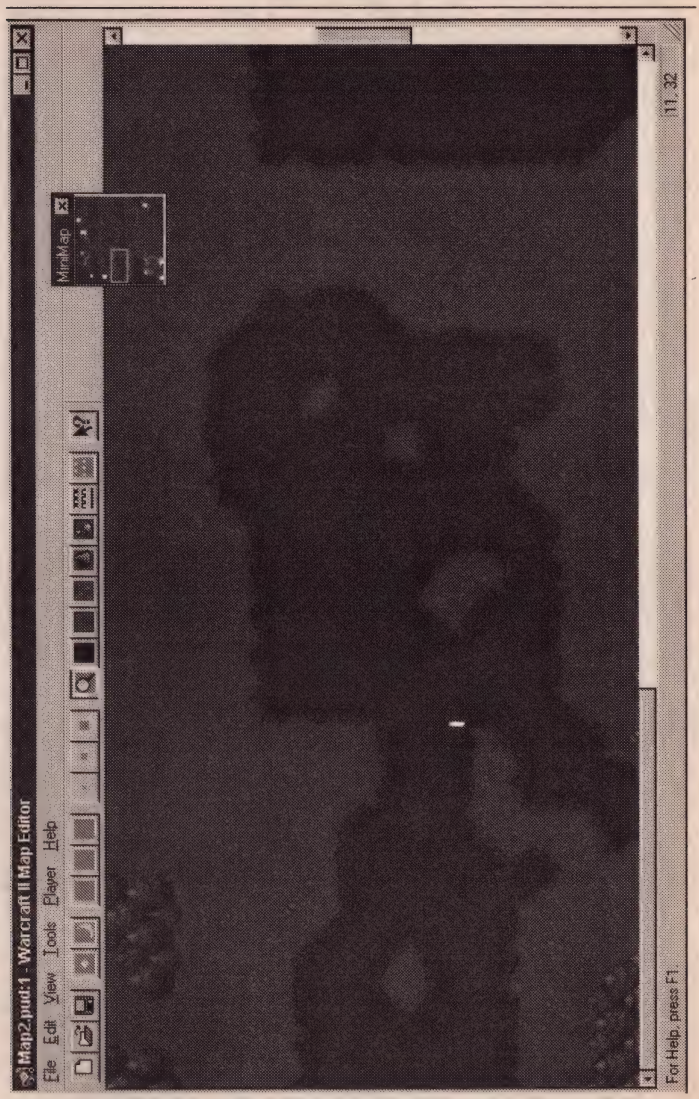
Warcraft II's editor had full on-line Windows help, the complete and utter full monty…

Also ran

Nothing to rival this one yet

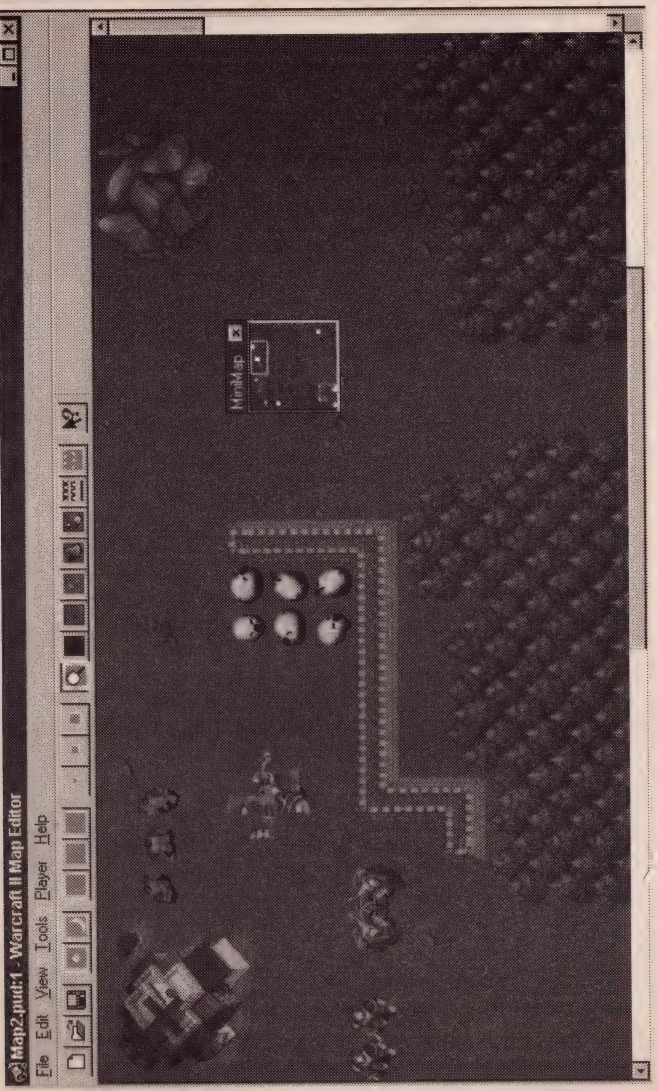
Internet sources

http://www.blizzard.com – Blizzard's web site.



Making the river which splits the human and orc forces.

Rock formations made easy, and let's add a goldmine why not?



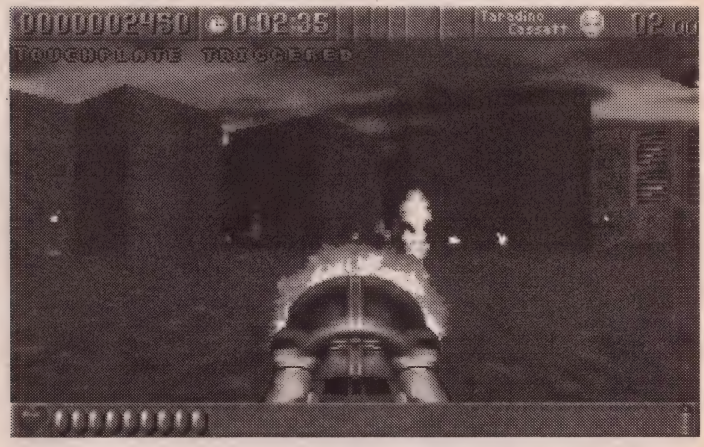
Another view of the human village.

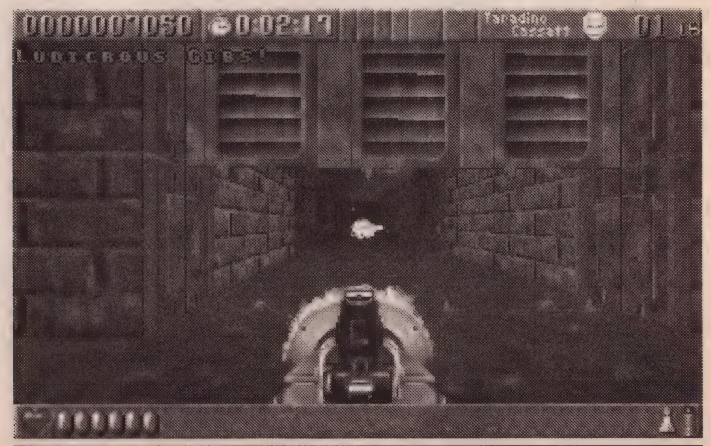
Chapter 5

Rise of the Triad – Dark War

Introduction

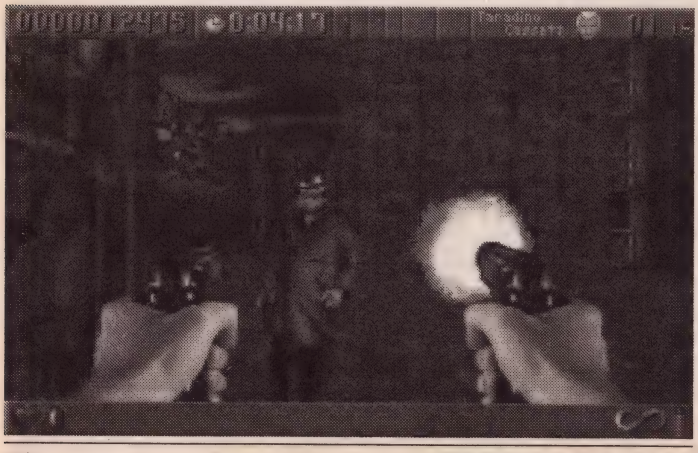
Rise of the Triad was a tremendous first-person blaster of the old school, the old school being St Demolition's Secondary Modern. Cast as a member of the United Nations elite HUNT team, your task was to vanquish the minions of the mysterious Triad and ultimately defeat their

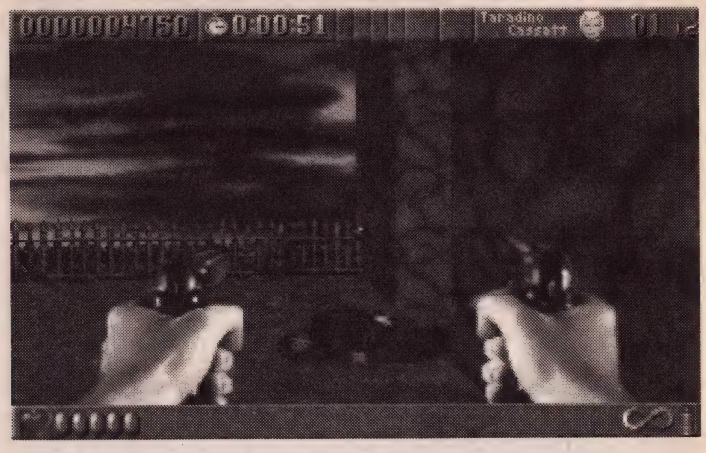




head honcho, El Oscuro. Above all, Rise was renowned for being totally carnage-tastic, with extreme and unnecessary levels of violence, limbs flying to all corners of the compass and so much blood it'd take four cyber-demons a week to mop it up.

Obviously, there's some hysterical fun to be had in





designing your own *Rise* levels, especially as it offers modem and network options so that you can blow your mates away too. Fortunately, there's an excellent Windows Shareware editor, *RottEd* version 1.1 by Wayne Sikes, which allows you to accomplish this task with the minimum of fuss.

First principles

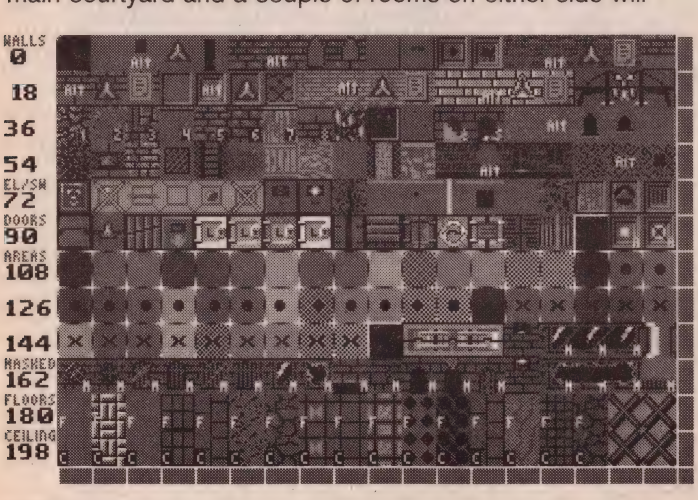
RottEd uses a tile-based system to describe *ROTT* levels, and each tile is described by an X, Y co-ordinate to identify it within the larger grid. Each tile performs a separate function in the game and you can also double-left-click with the mouse to get a more detailed account of a its characteristics at any time. *ROTT* levels require that you set a string of critical variables (general characteristics like height, illumination, sky texture etc.) for the entire map in the upper left hand corner (0,0 to 08 on the grid). However, *RottEd* is extremely helpful and will supply a basic set for you, so that the level will definitely work.

To actually begin drawing out your level, you move

between two main tile sets which work as a kind of texture palette. Background tiles are, unsurprisingly, used to build up the background to your level and include things like doors, walls, floor and ceiling designs. Foreground tiles are overlaid on top of the background set and deal with all the objects in the game – items like weapons, enemies and switches. You might find it a bit tricky remembering which tile does what, but use the Background and Foreground Tile Summaries in the help file to identify their various functions.

Walkthrough

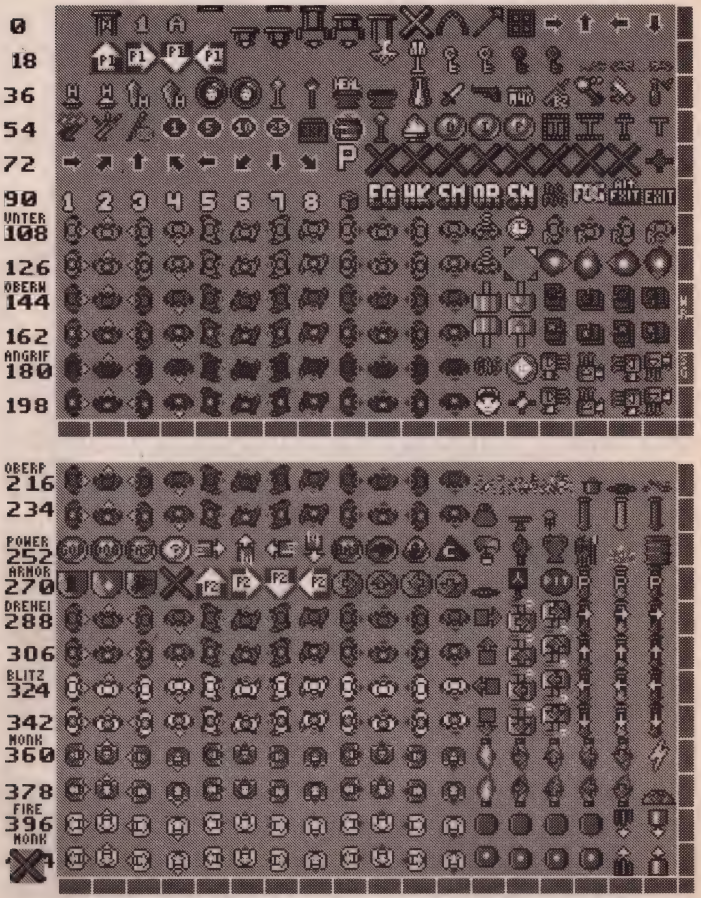
Okay, here's how to make a sample level using *RottED*. Starting with the background tile set, I find some floor, wall and door designs and click them into place on the grid to construct the basic floor plan of my level. The start location is at the beginning of a long chamber which opens into my main courtyard and a couple of rooms on either side will



RottEd's background tile set.

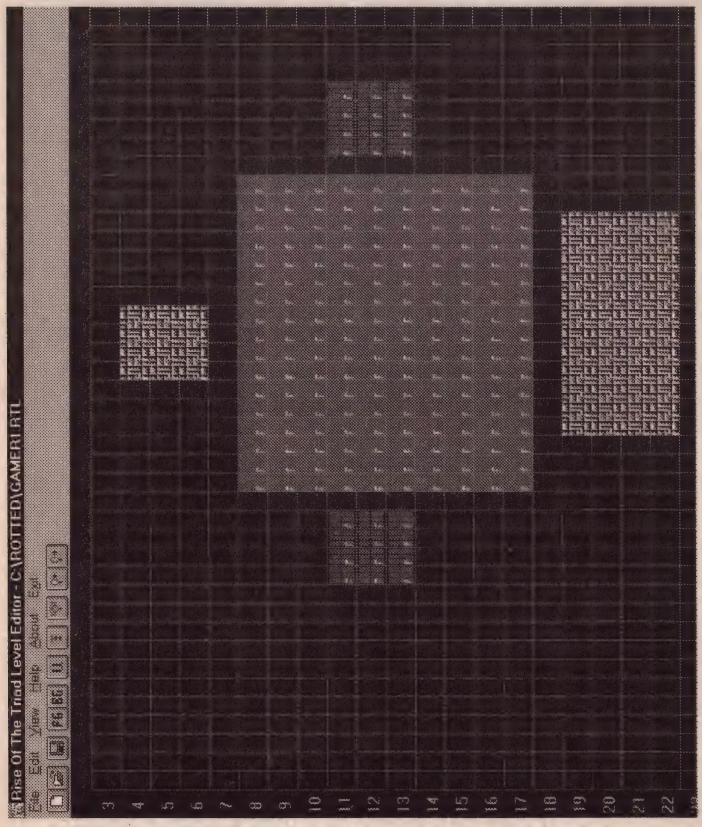
add something to explore. You'll notice I've reserved the room to the south as a level exit, which will probably contain some harder bad guys.

Switching to the foreground set, I search through the



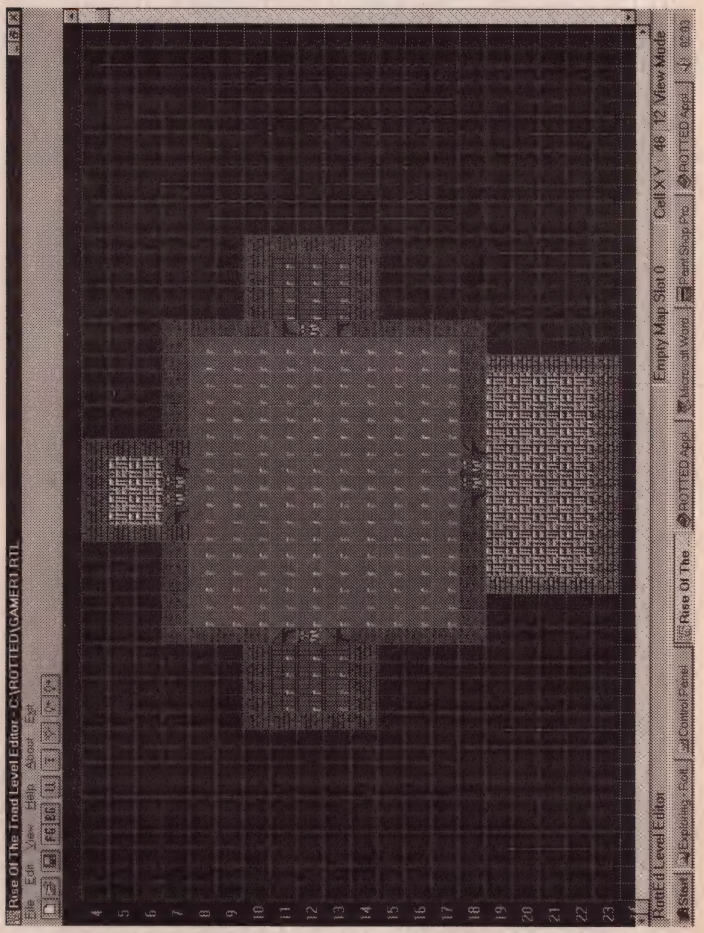
Two of *RottEd*'s foreground tile sets.

tiles and place a one player start, adding a pistol as my beginning segment. Out in the main courtyard, there's plenty of room for some wimpy guards but I also place a machine gun, some spinning blades and Excalibat, a very groovy weapon. The rooms on either side now contain some powerful robots, but my final challenge is end of level room to the south, which is now inhabited by a crack squad



Basic rooms sketched out.

of assault troops. Adding the level exit finishes the job and then I use *RottEd*'s Edit menu to select a 'Default Top Corner', adding the critical variables for the level. Hooray, mission accomplished, and now all I need to do is run

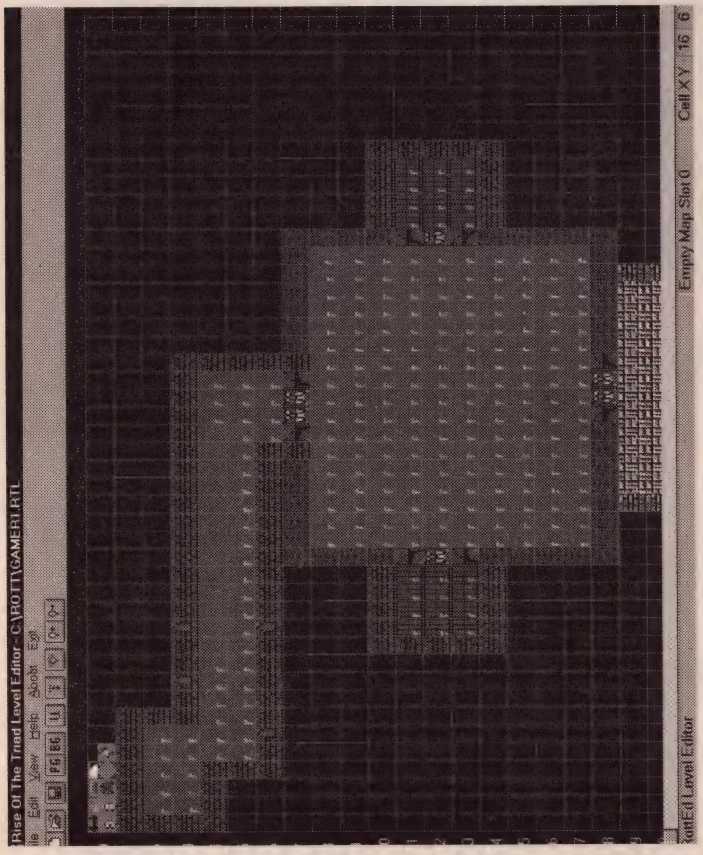


Main complex with walls added.

ROTT's setup and choose 'Use Modified Stuff' to see the level in action and blow some of those Triad suckers away.

Helpfiles

Full on-line Windows help comes as standard in *RottEd* 1.1. It's also worth looking at Readme.now text and printing

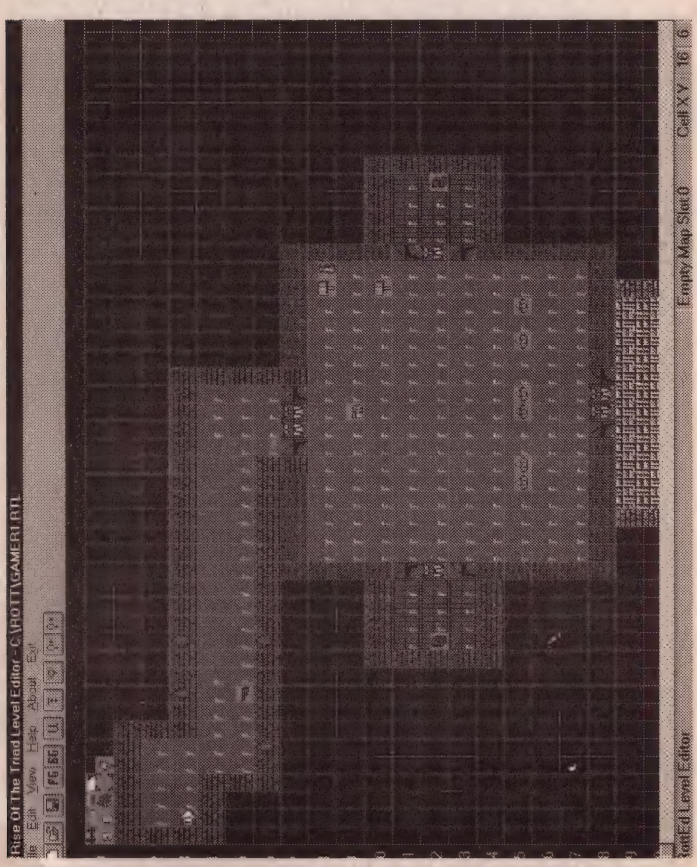

Rise Of The Triad Level Editor - C:\ROTT\GAMER1.RTL
File Edit View Edit Assist Exit
Empty Map Slot 0
Cell X,Y 16 6
RottEd Level Editor

Complete level empty of monsters and objects – critical variables added in top left corner.

out the sections Quick Reference, Background Tile Summary, Foreground Tile Summary and Tutorial – Creating Your First Level, as a reference when constructing a level.

Also ran

RottEd has no real rivals for designing *ROTT* levels.


Rise Of The Triad Level Editor - C:\ROTT\GAMER1.RTL
File Edit View Help About Exit
Empty Map Slot 0
Cell X,Y 16, 6
RottEd Level Editor

Complete level with all monsters and objects added.

Chapter 6

X-Com – Terror from the Deep

Introduction

X-Com – Terror from the Deep is a top-notch strategy affair which casts you as the head of the recently-revived X-Com organisation, and charges you with combating a new alien menace which has arisen from beneath the oceans. The sequel to the popular *UFO – Enemy Unknown*, *TFTD* is positively huge in scope and, for the discerning strategist, remains one of the sternest challenges around.

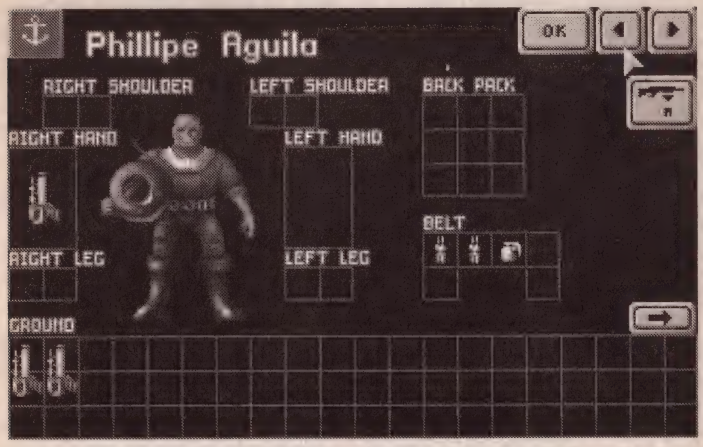
Unfortunately, there's no definitive level editor for *TFTD* at the moment, so you can't drastically change the overall campaign or design specific missions for your aquanaut teams. However, there are shareware save game editors which allow you to fiddle with the characteristics of your teams and bases, and the one we've picked is the *XCOM: TFTD Editor Version 1.0* by Steve Osborn. It's a simple but effective little program, remarkably easy to use, and with careful application it will allow you to construct an X-Com force which is virtually unstoppable...

Walkthrough

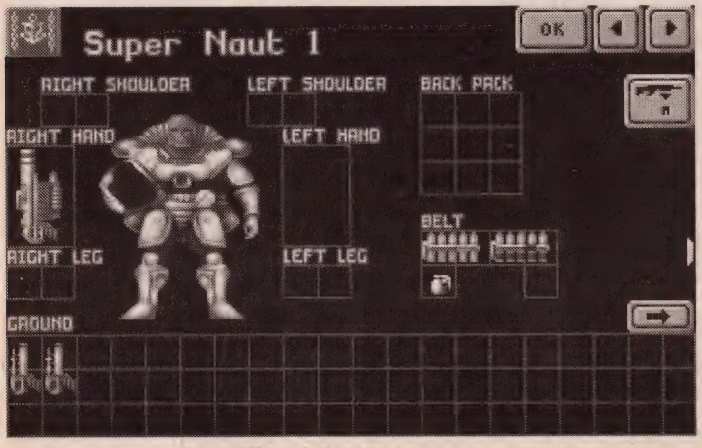
Unzip and install all the editor files into your *TFTD* directory and then simply run the TftdEdt.exe program in either Windows or standard Dos mode. You'll be presented with a menu where you select which savegame to edit and after you've picked one, another sub (ho ho) menu allows you to increase your money, boost your aquanauts' statistics or increase the facilities at any one of your bases.

Okay, diving straight in (if you'll forgive the pun), since a little cash never hurts, we'll immediately take advantage of a large interest-free loan and then move swiftly on before anyone notices. What about a better base? Well, selecting the Bases menu, you just run through the exhaustive list inputting values which ensure your centre of operations gets the best of everything.

Finally, we move onto the Aquanauts menu, and here there are several functions of interest. Randomise will give team members a whole new set of, er, random stats, while

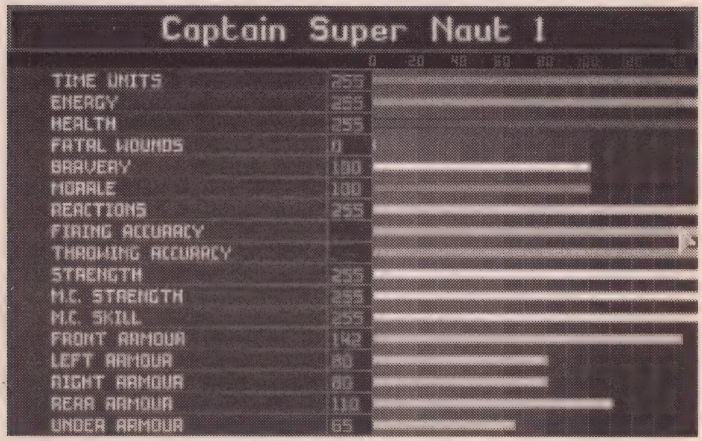


Plain old Phillipe Aguila...

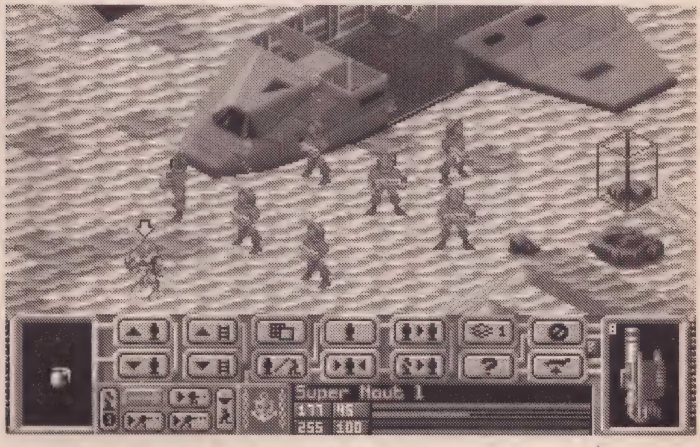


...is suddenly transformed into Supernaut.

Heal/Revive reinstates anyone who has fallen in the line of duty. However, the one that catches the eye straight away is the Maxout function, which will automatically boost an



Check out those stats!



Supernaut leads a team of ordinary mortals in a raid on an alien base.

aquanaut's stats into the stratosphere. 'Tis but a moment's work and then plain old Phillipe Aguila disappears into an imaginary telephone booth and emerges as a new breed of aquanaut, the Supernaut!

Splendid. *TftdEd* has given us piles of cash, a base which is the envy of the free world and, in the person of Supernaut, a bloke who is well and truly capable of dishing out some severe punishment to the enemy. That should give those pesky aliens something to think about!

Internet sources

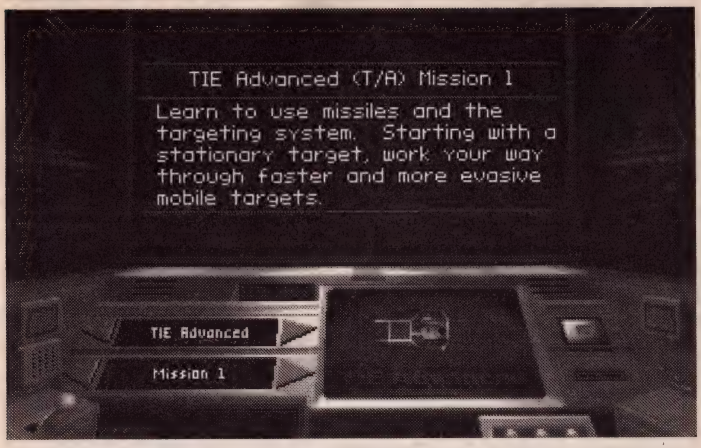
Questions and comments on the *X-com Editor* can be addressed to Mefisto@ix.netcom.com

Also Ran

XCOM 2 Multi Editor v0.2 by Khor Chin Heong – Another *XCom2* editor which performs a similar function.

Chapter 7

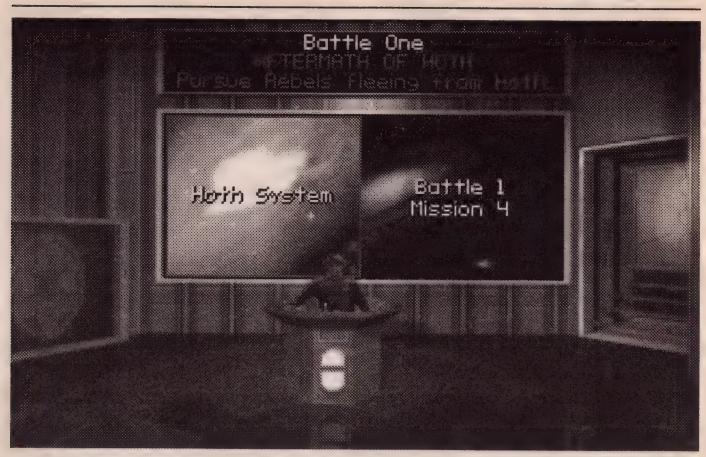
Tie Fighter

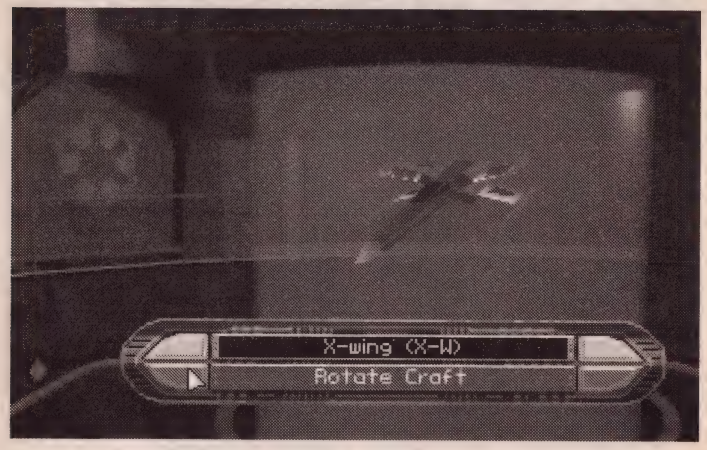

TIE Advanced (T/A) Mission 1
Learn to use missiles and the targeting system. Starting with a stationary target, work your way through faster and more evasive mobile targets.
TIE Advanced
Mission 1

Lucasarts' *Tie Fighter* is considered by many old hands to be the ultimate space combat simulator. Following on from the phenomenal success of *X-Wing*, *TIE* and its add-ons allowed players to fly for the Empire, embrace the dark side and put down those upstart rebels once and for all.

Look at any specialist *TIE* site on the Internet and you'll find both single missions and complete campaigns for the game, which have all been constructed by dedicated *TIE* enthusiasts. It's true there are several complete shareware editors for *Tie Fighter*, and the *Tie Mission Builder version 1.21* seems to be a popular choice. Unfortunately, most *TIE* editors contain some form of scripting language, require more than a smidgen of specialist knowledge and are therefore a little outside the scope of this guide.

So instead we're going to take a shufti at the *Tie Fighter Mission Editor version 2.0* by Sean Baker, which allows you to edit both normal and historical missions in the game. *TMB* uses a simple menu-based system and once you've given it the location of your *TIE* directory, you just pick a battle, select which mission you want to fiddle with





and you're away. *TMB* will allow you to edit everything from what craft you fly, to what weapons you're carrying and even which side you fight for. It's an excellent little editor and should give many hours of pleasure to the average *TIE* aficionado. Now pass over that black cloak will you, Lord Vader...

Internet sources

Lord Soth's Tie Fighter Archive at the Happy Puppy Internet site
Author's Internet address: **srbaker@nwoca.ohio.gov**

Lord Soth's TIE Fighter Archive

Any comments should be sent to: cmd@aimnet.com

Filename	Size	Description
ADVTIE.ZIP	1,910	UTIL: ADV file for the WCS Mark II.
ALLBONUS.ZIP	2,436	TEXT: My list of bonus goals for ALL missions.
CISPILOT.ZIP	1,776	PLT: Pilots from Compu$erve's Flight Simultation Forum.
DOECK.ZIP	5,287	CRACK: My own crack for Defender of the Empire.
DOEGOALS.ZIP	1,122	TEXT: A listing of Defender of the Empire goals. I have NOT verified all of these.
DOEHINTS.ZIP	8,881	TEXT: Strategies and bonus goals for Defender of the Empire. Again, I have not verified all of the hints, but this looks _REALLY_ good. This in in Windows Write format.
DREADNGT.ZIP	479	MISSION: A small mission in which it's your T/D versus their DREADNAUGHTS. The Dreadnaught is in the DOE add-on, but it's not used in any of the missions.

DREAM.ZIP	6,617	MISSION: This will test your T/D combat abilities.
DSPTOD.ZIP	19,851	BATTLE: You are charged with helping the Empire to inhabit an area that was previously thought to be worthless.
FALC2.ZIP	9,206	MISSION: Revenge of the Falcon Part 2.
FALCO1.ZIP	9,669	MISSION: Revenge of the Falcon Part 1.
FOXBAT.ZIP	12,816	MISSIONS: Fox Bat.
GOALVIEW.ZIP	16,140	UTIL: Views all mission goals for any mission but only works with original missions (not DOE missions).
HURICANE.ZIP	3,574	MISSION: Capture the Jackal.
IMPDREAM.EXE	12,306	MISSION: An Imperial's Dream.
JAWSOPER.ZIP	5,929	MISSION: Jaws of Perdition.
LS-TIECK.ZIP	5,626	CRACK: My own crack for the original TIE Fighter and for the Defender of the Empire add-on version.
NTECH1.ZIP	6,200	MISSION: Discovery of New Technology Part 1.
NTECH2.ZIP	7,359	MISSION: Discovery of New Technology Part 2.
NX-TIECK.ZIP	6,990	UTIL: If my crack doesn't work for you, try this one made by NEXUS.
REAPER.ZIP	5,563	MISSION: Reaper's First Training Mission.
STTOD.ZIP	31,946	BATTLE: The ShieldTech Research Lab. Pretty cool...

TFEXPAND.ZIP	6,674	UTIL: Expands the LFD sound files into individual VOC files.
TFLSCRK.ZIP	4,345	UTIL: A crack that I made for the original TIE Fighter (w/o any add-ons). If you have problems with it, get nx-tieck.zip instead.
TIEAWING.ZIP	20,556	CLIP: The right way to destroy A-Wings.
TIE-FTRN.ZIP	2,263	UTIL: The first TIE Fighter trainer that was made. Among other things, you can maximize your shields and gun energy with one keystroke.
TIEBONUS.ZIP	5,626	TEXT: A listing of bonus goals that I made. Contains both a text only version and a MS Word version.
TIEDITW.ZIP	113,920	UTIL: A Windows mission editor. I have no idea how to use this...
TIEEDIT.ZIP	10,880	UTIL: Changes all of the missions so that you can fly a TIE Defender with a sensor jammer in every mission. Great!
TIEGUIDE.ZIP	11,221	TEXT: A strategy guide for TIE Fighter. Covers Battles 1 through 7, as well as general strategies. IMO This is better than the "official guide."
TIEMIDS.ZIP	130,869	MIDI: All of TIE Fighter's music in General MIDI Format, Level 1.
TIEMINE.EXE	9,925	MISSION: A good mission to

		develop your mine racing skills.
TIEMUSIC.ZIP	27,941	UTIL: Extracts all of the General MIDI files from TIE Fighter. If the extracted files don't work for you, download tiemids.zip.
TIENWT.ZIP	17,078	UTIL: A FULL trainer! This does just about everything you could ask for, but unfortunately, it only works with the original version (w/o Defender of the Empire).
TIEPASS.ZIP	8,755	UTIL: TSR that enters the passwords you give it into TIE Fighter. For those who feel that changing the game files isn't right.
TIESCR.ZIP	43,008	UTIL: Mission variable randomizer that hanges around some variables and is very strange.
TIESND.ZIP	12,356	PATCH: This is the long awaited General MIDI patch from Lucasarts. This completely eliminates the hanging note problem when you pick General MIDI for music. If you have a wavetable card, get this now!
TIETRN.ZIP	2,992	UTIL: Another trainer. This didn't work for me. Maybe it'll work for you.
TIETIP.ZIP	6,372	TEXT: All of the goals for the original missions and the

		general procedures for beating the missions.
TIEWOTAN.ZIP	16,054	CLIP: This clip shows you exactly how effective the wotan weave can be.
TI_HM4.ZIP	42,761	CLIP: See how the experts beat the super-tough TIE Interceptor Historical Mission #4.
TMB121.ZIP	140,725	UTIL: A very nice TIE Fighter Mission Builder. Supports mouse, DOE, and plenty of other things. This version adds a briefing scripting language.
TME2.ZIP	81,537	UTIL: Program that changes a few variables around in the mission files.
TPE101.ZIP	52,422	UTIL: A very good pilot editor. It seems to have everything there needs to be in a pilot editor, but it does not have DOE support.
TREMAP.ZIP	13,839	UTIL: A very useful utility that lets you redefine certain keys to help you manage your power settings. There's also a key to put your TIE in full engine mode – great for evading missiles!
ZAARIN.ZIP	21,546	BATTLE: Follow the Emperor's commands and chase Zaarin!

Chapter 8

The Shape of Things to Come

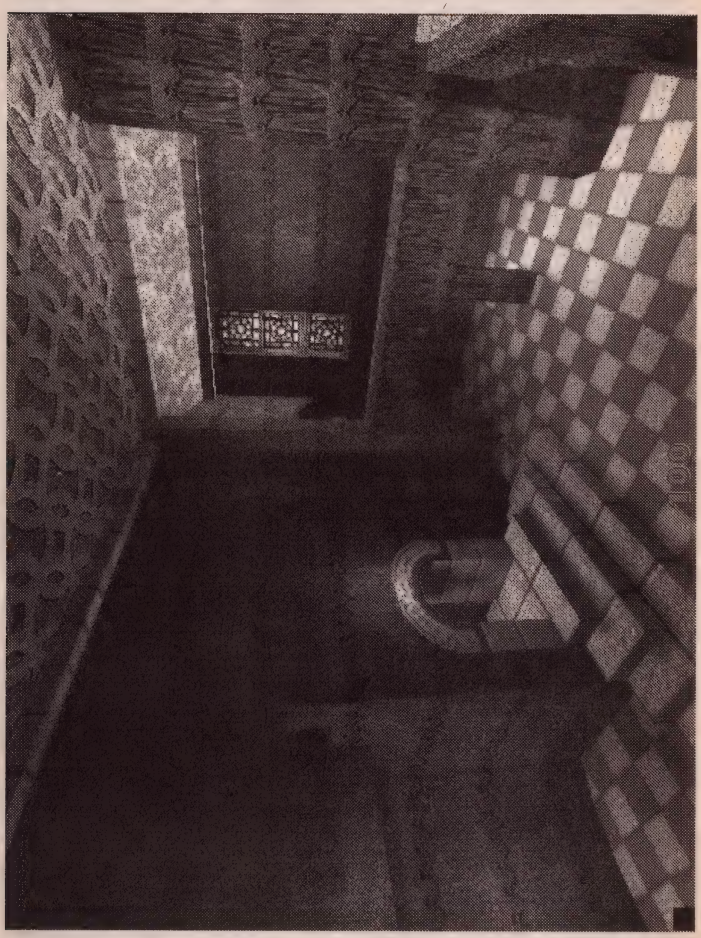
Quake

It seemed like only mere seconds after the release of *Doom 2* that everyone was clamouring to see Id's next-generation game *Quake*. With a projected release date of some time this summer, the days have been slowly ticking by and the gaming world's breath has been truly bated. And then, almost innocuously, a limited three-level demo winged its way onto the Internet recently and gamers, heartily stirred by the opportunity, have been deathmatching each other to oblivion ever since.

However, alongside the demo there was also a tantalising glimpse of the actual *Quake* editor and so we hot-footed it back to Id to investigate. Unfortunately, we were in for a bit of a disappointment, as Sandy Peterson revealed that an on-board editor probably won't form part of the initial *Quake* package. The screen shot comes from Sandy's Unix-based NEXT STEP system, a powerful machine which is owned by about only seven other people in the States, and Sandy's pretty sure none of them use it to play *Doom*. As it stands, Id's own *Quake* editor would be quite useless to the average gamer and the amount of work needed to develop something acceptable will be outside the scope of the first release.

Sandy is confident, however, that shareware level editors for *Quake* will appear in much the same way that they did for the original *Doom*. So he was happy enough to run through some of the design elements which will be incorporated into the new engine, which budding designers may eventually be able to get their sweaty mitts on.

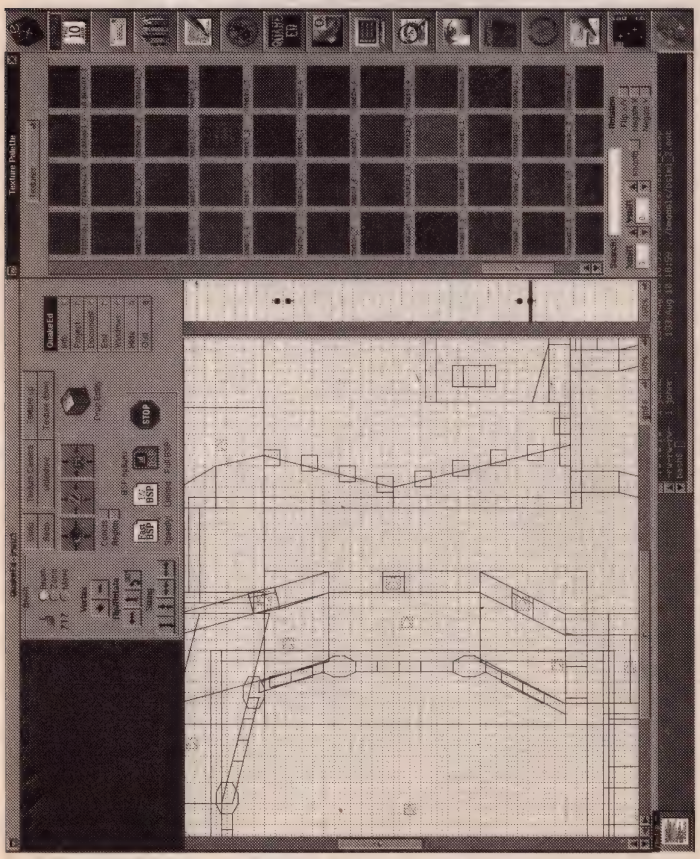
For a start, unlike *Doom*, *Quake*'s going to be a genuine 3D game, which will feature real light sourcing and shadow effects, so the environment will be infinitely richer. The actual 3D effects will be a lot more impressive too, describing complex shapes, hallways and arches which will



A gorgeous hallway from *Quake*.

enable you to construct two-storey buildings which actually work. There's also going to be a lot more emphasis on vertical action, with the player being able to look up and down, leap over chasms or even perch on top of doors.

As we chat, Sandy describes the *Quake* screen in front of him. He's by a sinister door which is shaped like a



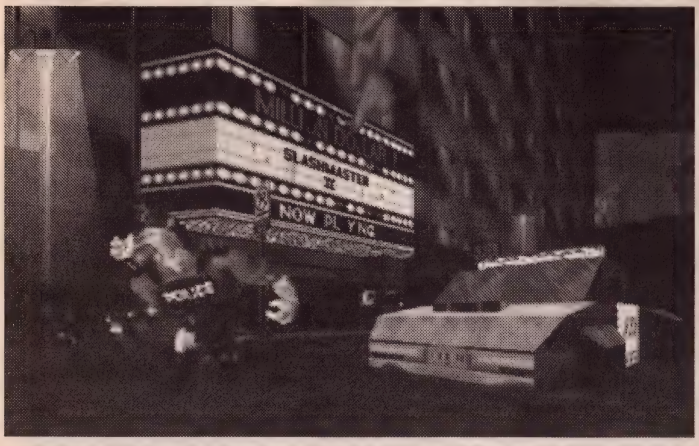
Id's level design system for *Quake* – beyond the reach of mere mortals.

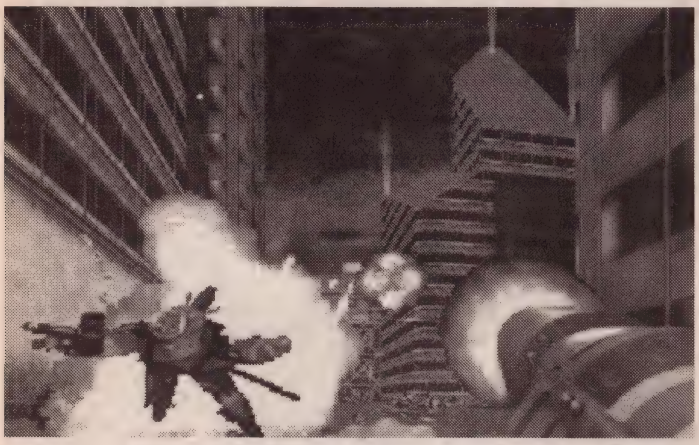
ferris wheel, but when it opens, a nasty set of teeth emerge and chop down on anyone unfortunate enough to amble through. Nearby, Sandy bends down to examine a recent Ingib (In-giblets – Id speak for a dead monster) and finds the still-grinning head of a ogre which he blew away only last night. There's a certain justifiable pride in his voice as he adds, "These are just some of the juvenile things the new *Quake* engine will allow you to do. Kind of fun isn't it?"

Duke Nukem 3-D

The shareware version of *Duke Nukem 3D* has recently arrived on the Internet and it's been causing a bit of a stir as well, and no mistake. Now Duke might be the kind of bloke who accepts that innocent civilians are going to get caught in the crossfire once in a while, but you don't even have to be a tenth as hard to appreciate the quality at the heart of the *Duke* experience, 3D Realms' rootin-tootin, all guns shootin' Build engine.

Although we're now going to have to wait until April to see the full version of the game, the good news for *Duke*





fans is that it will contain a complete, integrated level editor – the Build construction tool – which not only allows you to design extra *Duke* levels, but also to construct completely new games of your own. What's more, it's guaranteed to be completely easy to use and requires absolutely no specialist knowledge! The Build Constructor Tool will let you scale

and rotate every single sector in the game and you'll be able to tailor all the sounds, textures and monsters to suit your personal needs.

You only have to look at the first *Duke Nukem* episode to appreciate the quality and flexibility of the Build system and what it can achieve. *Duke 3D* features high degrees of interaction with the environment. You can break through windows, blow apart buildings and even use remote cameras to spy on the opposition. The level designs, too, are extremely realistic and contain everything from seedy downtown cinemas, to elaborate prison complexes and even complete underwater levels. *Duke* was probably already going to be one of the games of the year, but with the possibility of having the Build construction tool at your fingertips as a bonus, who will be able to resist?

PC GAMER

There's little in 20th century life to rival the satisfaction of creating your own levels for games. Doom, Descent, Hexen, Warcraft II – with a little effort, all these games will accommodate levels of your own devising. In our great book, we explain which software you'll need, and how it all works.

Future PUBLISHING
Your Guarantee Of Value